

図1 FIG. 1

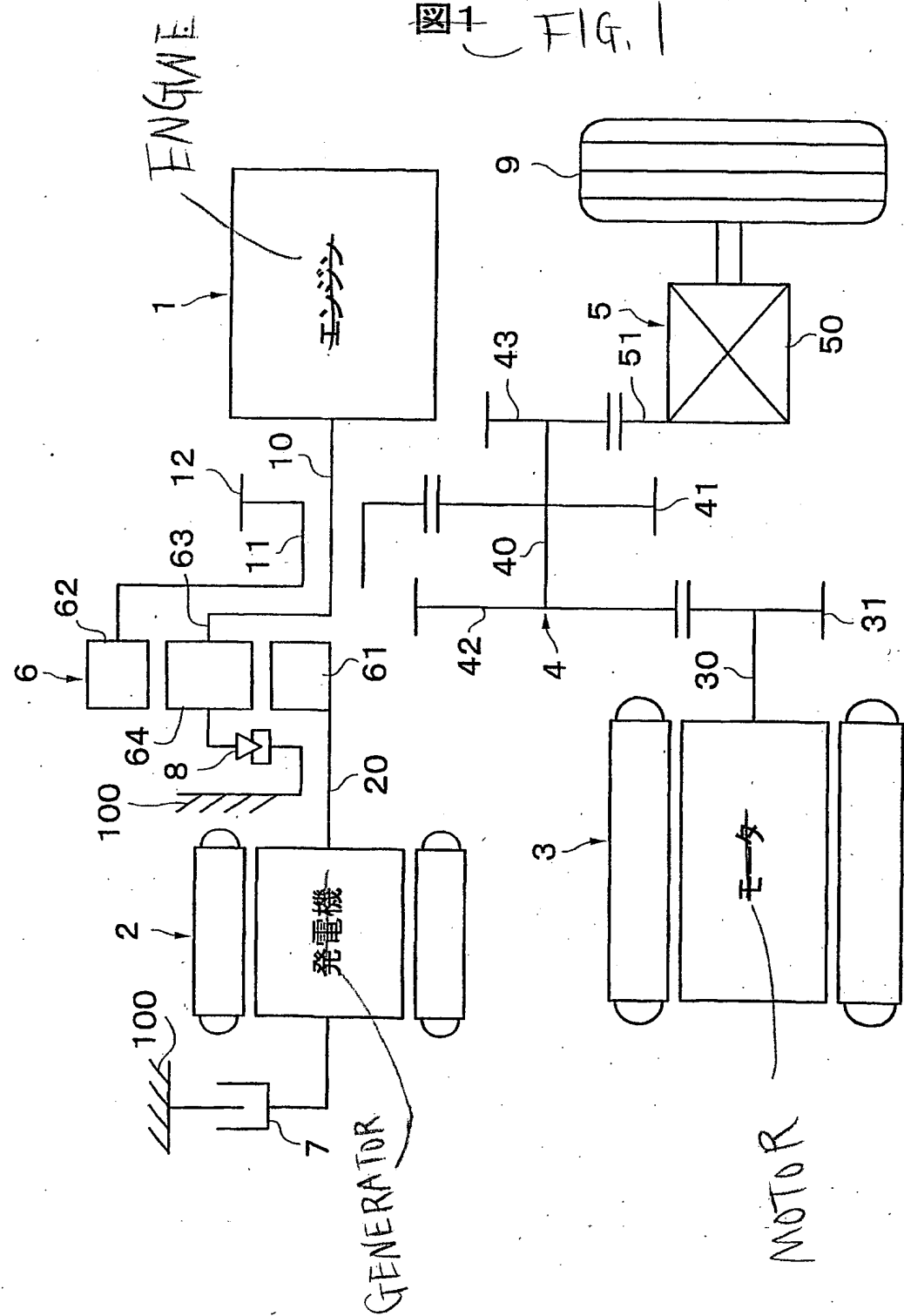


FIG. 2

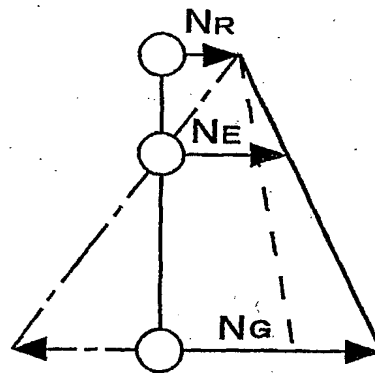
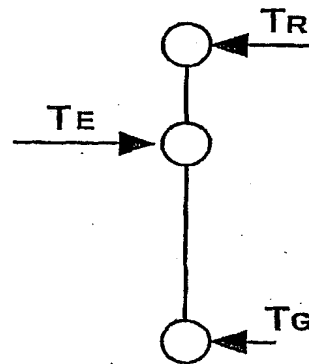


FIG. 3



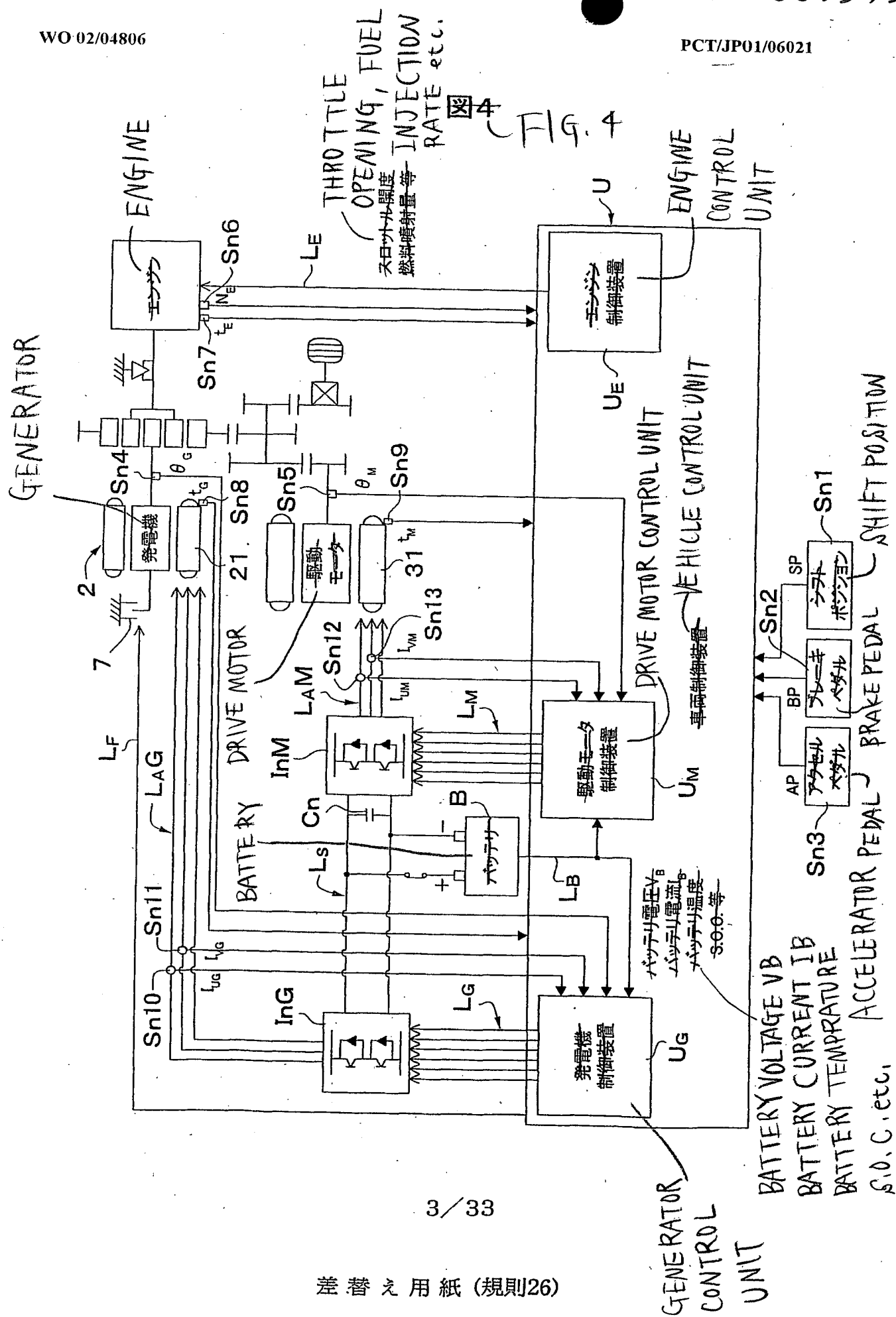
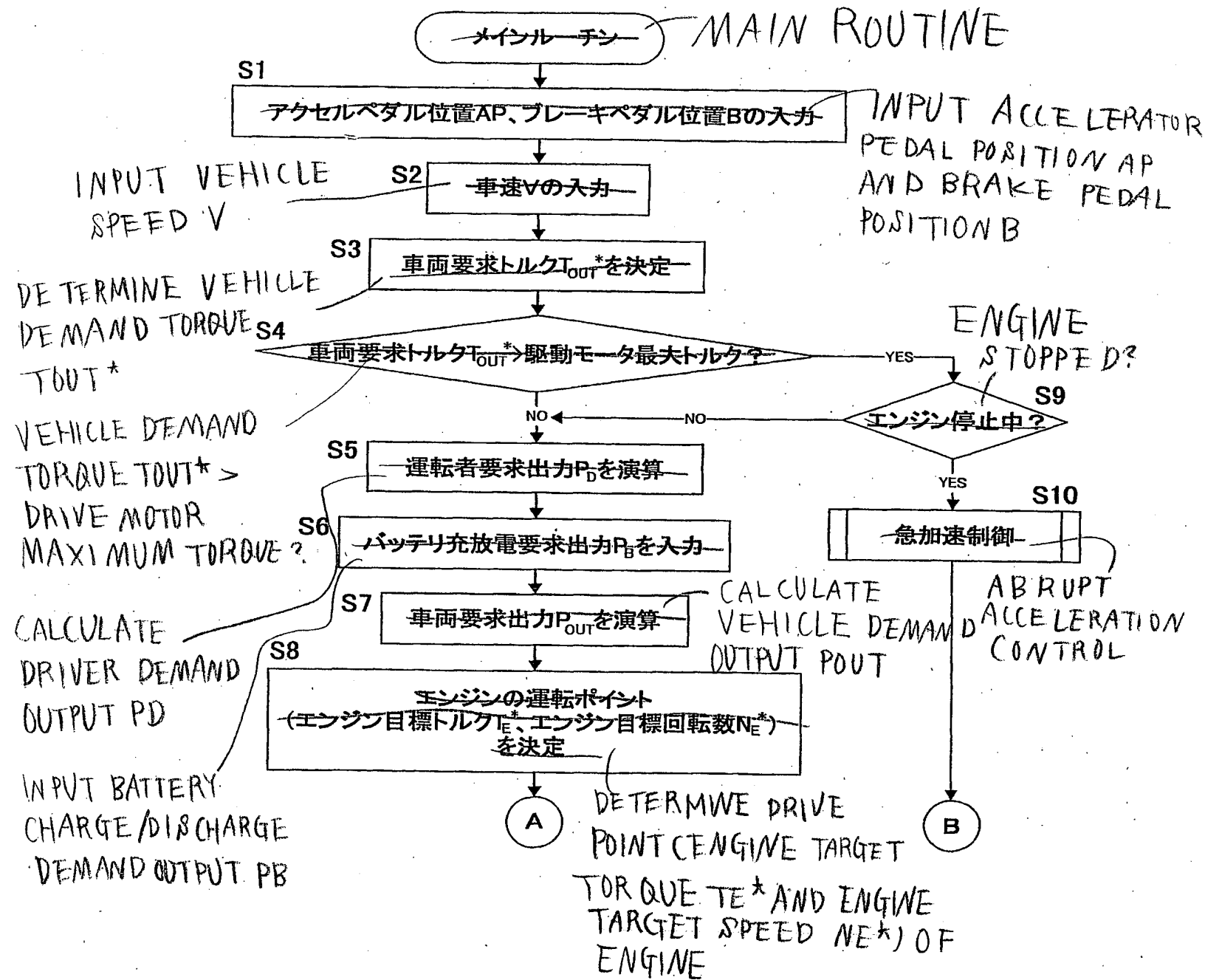


図5
FIG. 5

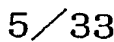


図7
FIG. 7

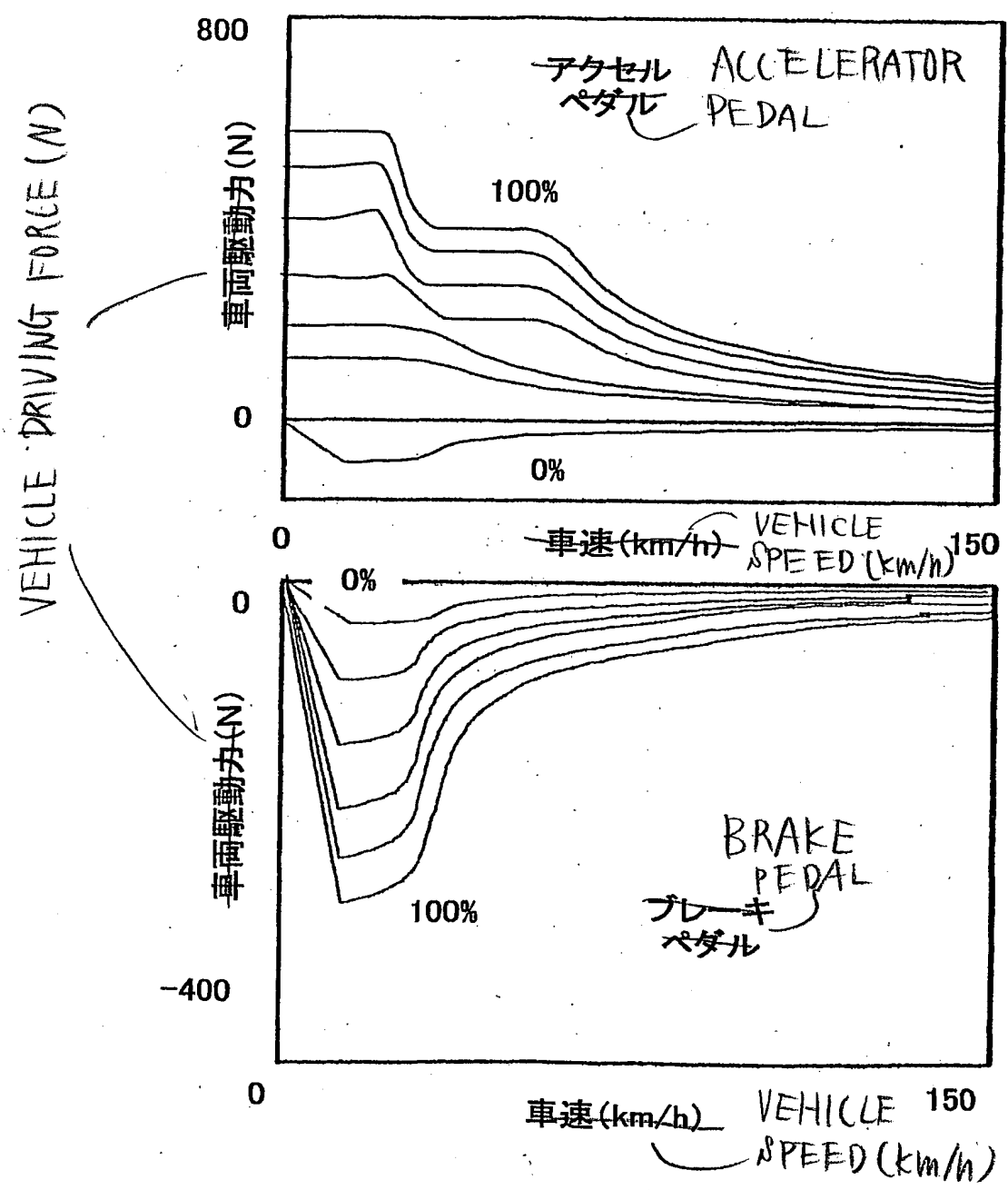


図8

FIG. 8

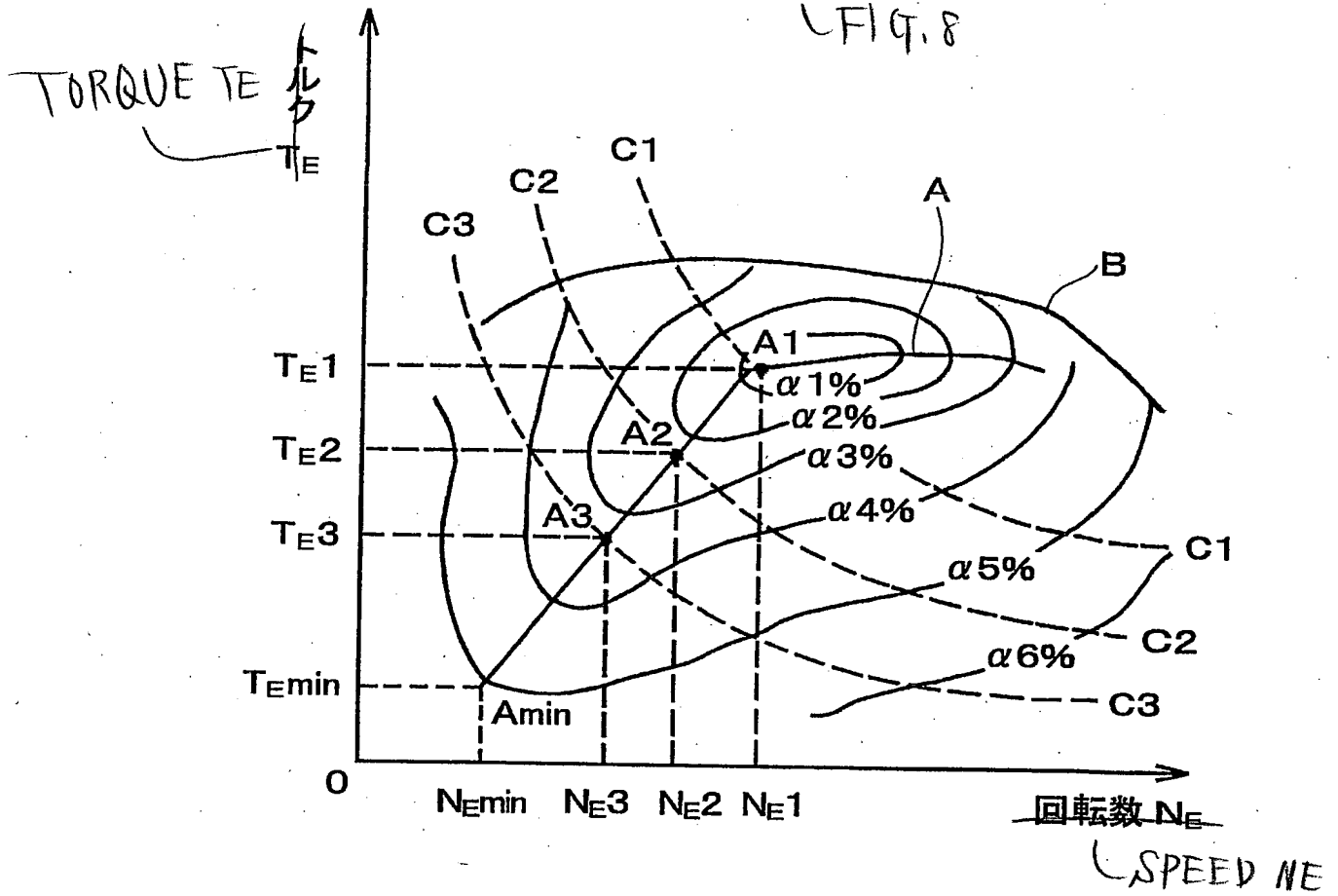
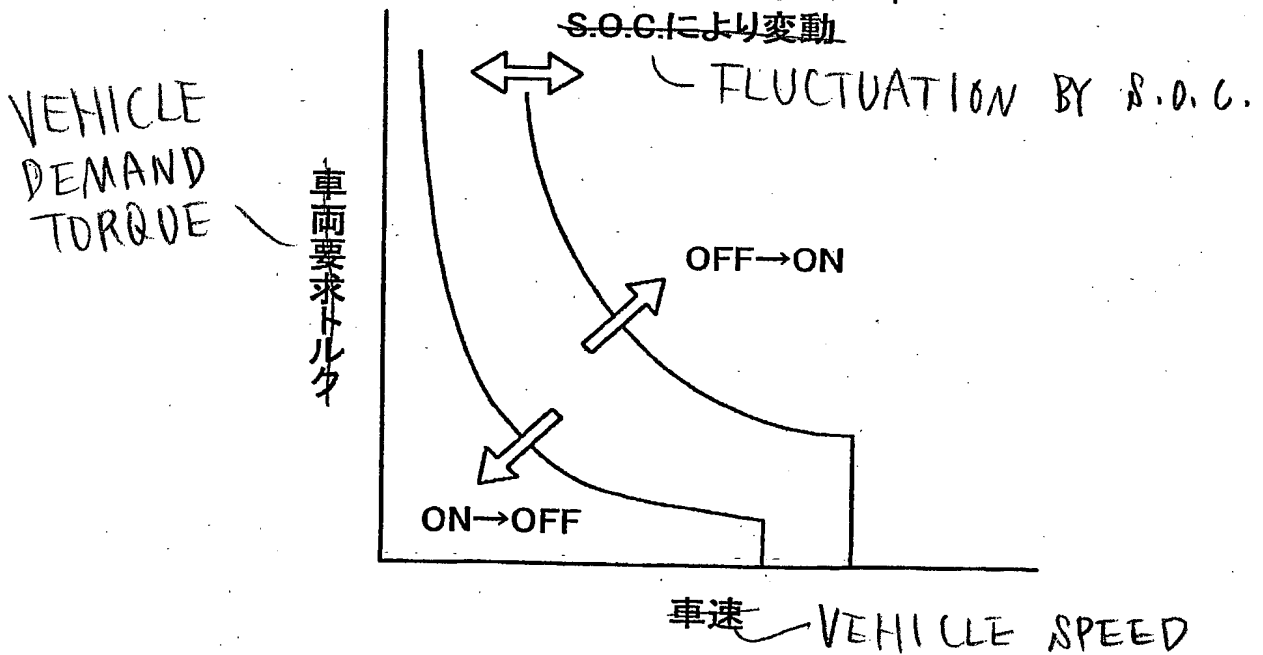


図9

FIG. 9



ABRUPT ACCELERATION
CONTROL ROUTINE

図10-
FIG. 10

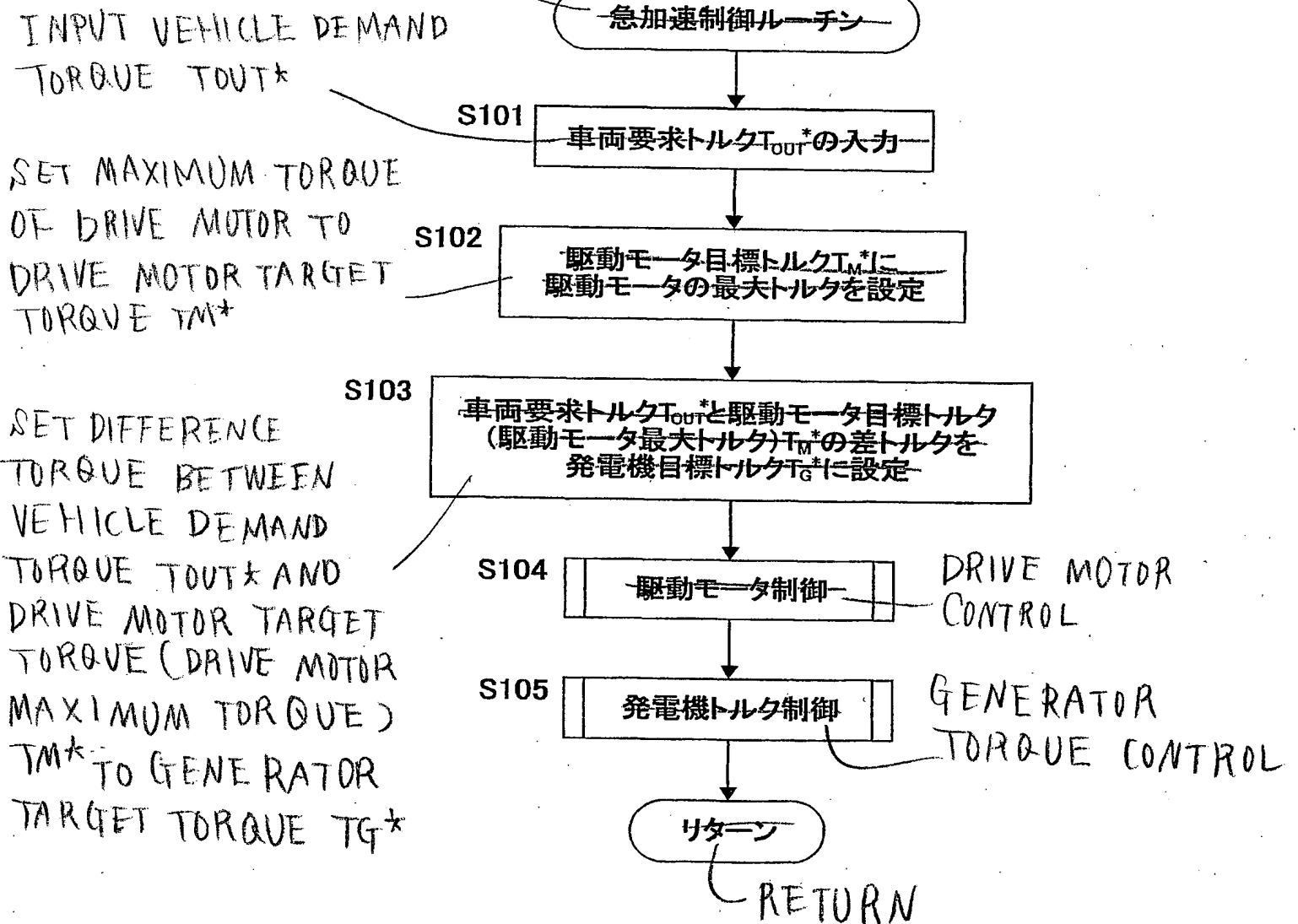


図11
FIG. 11

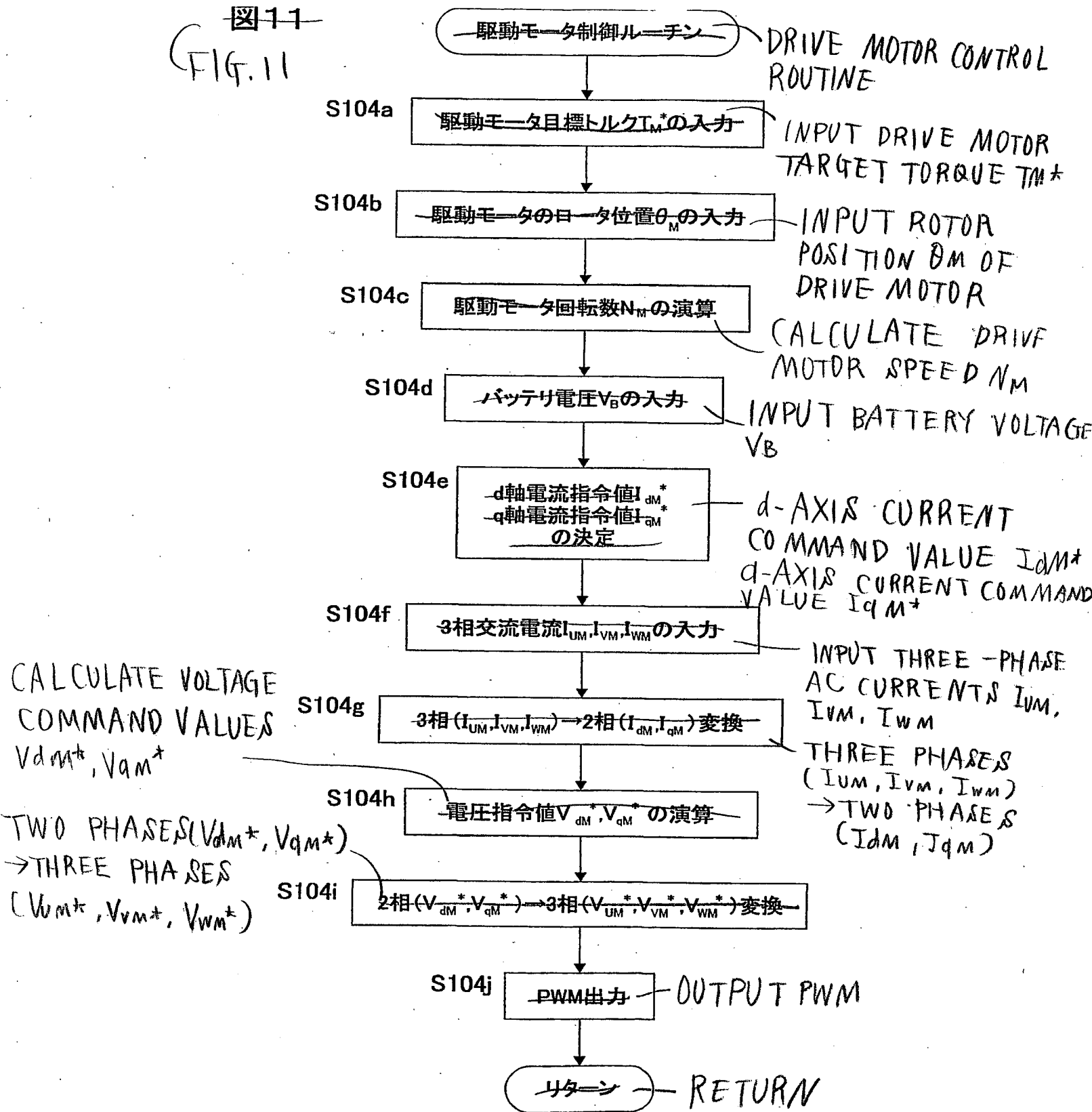


図12
Fig. 12

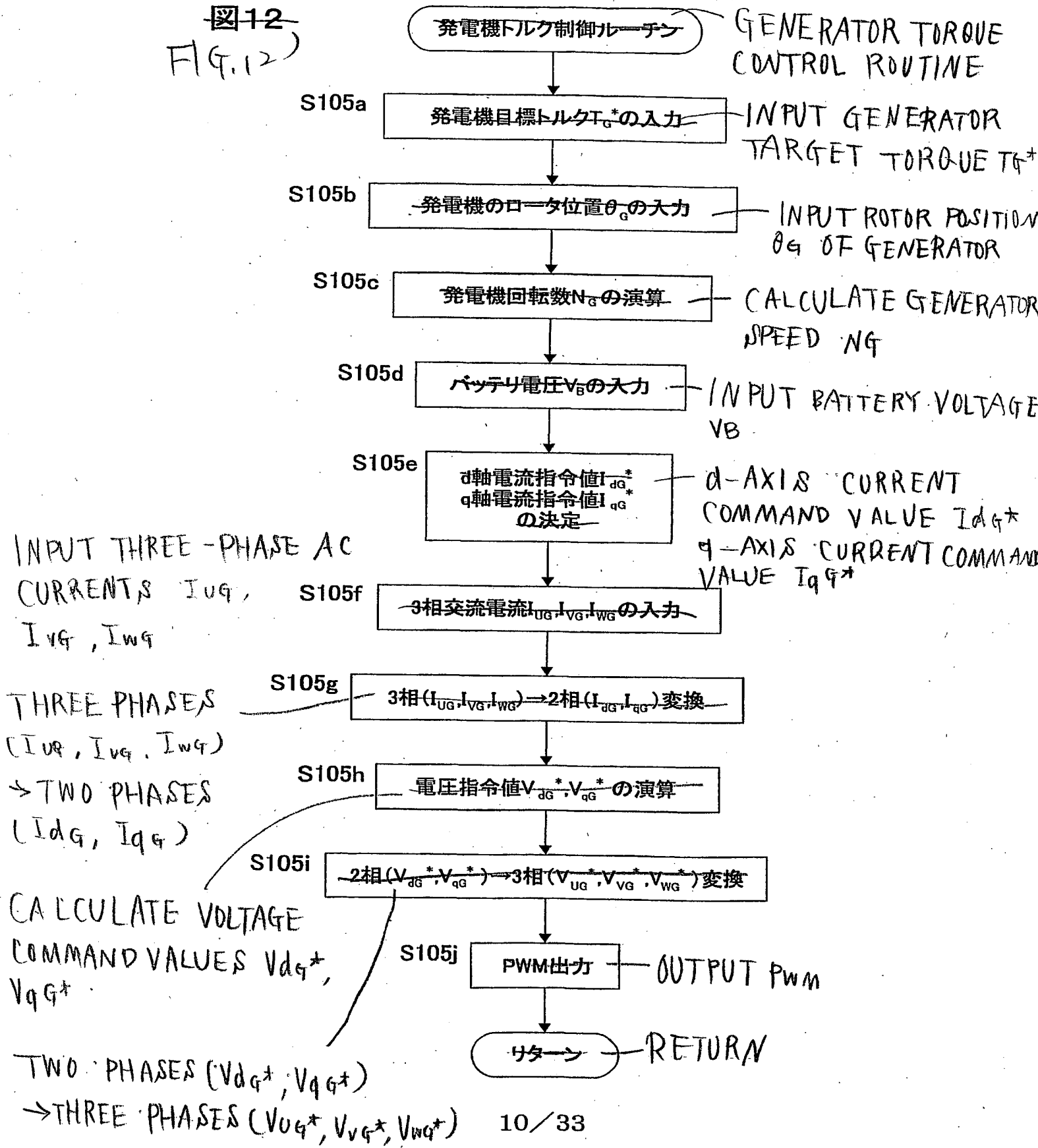
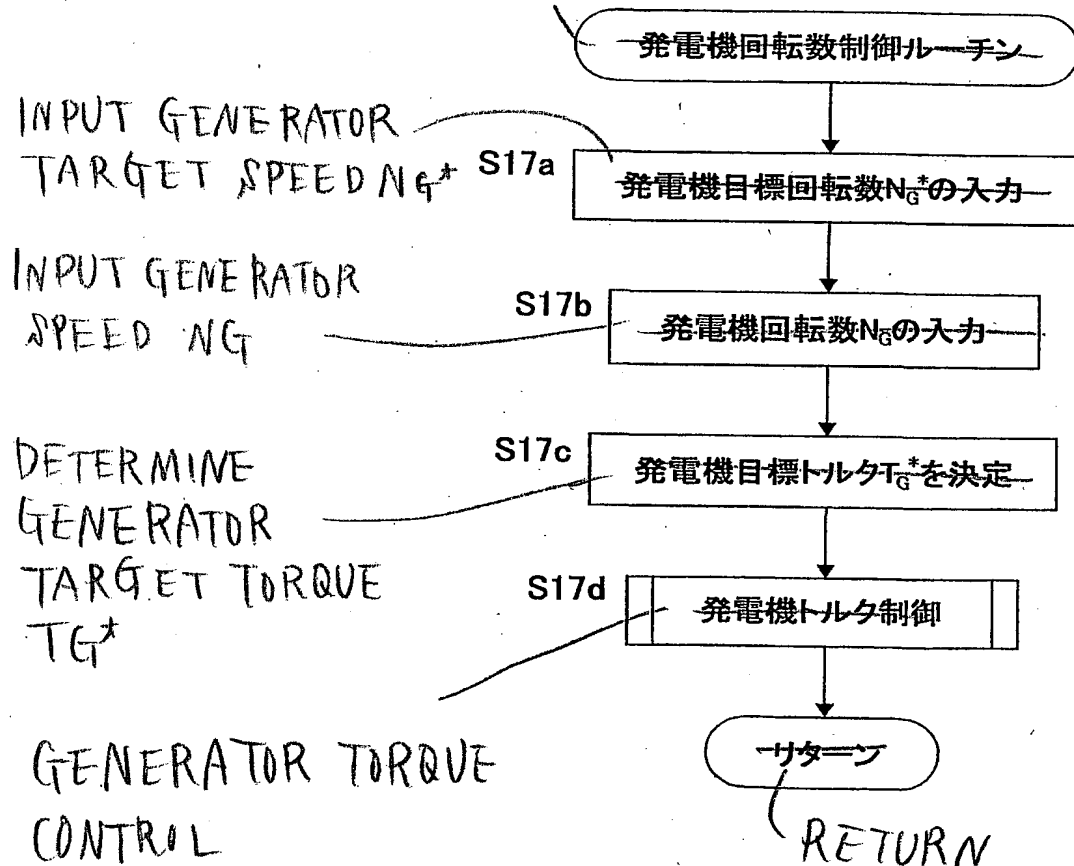


図13

FIG. 13

GENERATOR SPEED CONTROL ROUTINE



GENERATOR BRAKE ON CONTROL ROUTINE

PCT/JP01/06021

図14

FIG. 14

発電機ブレーキON制御ルーチン

SET GENERATOR
TARGET SPEED N_G^*
WITH 0rpmS22a 発電機目標回転数 N_G^* に 0rpm を設定GENERATOR SPEED
CONTROL

S22b

発電機回転数制御

S22c

プラネタリを介して出力される
駆動軸トルク $T_{R \rightarrow OUT}$ を推定ESTIMATE DRIVE
SHAFT TORQUE $T_{R \rightarrow OUT}$
→ OUT OUTPUTTED
THROUGH PLANETARY

S22d

駆動モータ目標トルク T_M^* に
 $= T_{R \rightarrow OUT}$ を設定SET DRIVE
MOTOR TARGET
TORQUE T_M^*
WITH $-T_{R \rightarrow OUT}$

S22e

駆動モータ制御

DRIVE MOTOR
CONTROL

S22f

発電機回転数 N_G < 第2の所定回転数?[GENERATOR SPEED N_G]
< SECOND PRE DETERMINED
SPEED?

YES

S22g

発電機ブレーキON

GENERATOR BRAKE ON

S22h

プラネタリを介して出力される
駆動軸トルク $T_{R \rightarrow OUT}$ を推定ESTIMATE DRIVE
SHAFT TORQUE $T_{R \rightarrow OUT}$
→ OUT OUTPUTTED
THROUGH PLANETARY

S22i

駆動モータ目標トルク T_M^* に
 $= T_{R \rightarrow OUT}$ を設定SET DRIVE MOTOR
CONTROL

S22j

駆動モータ制御

DRIVE MOTOR
CONTROL

S22k

発電機ブレーキON状態で所定時間経過?

PRE DETERMINED
TIME ELAPSED
IN GENERATOR
BRAKE ON?

YES

S22l

発電機へのSW停止

SW STOP OF GENERATOR

リターン

RETURN

GENERATOR BRAKE CONTROL ROUTINE

PCT/JP01/06021

図15

発電機ブレーキOFF制御ルーチン

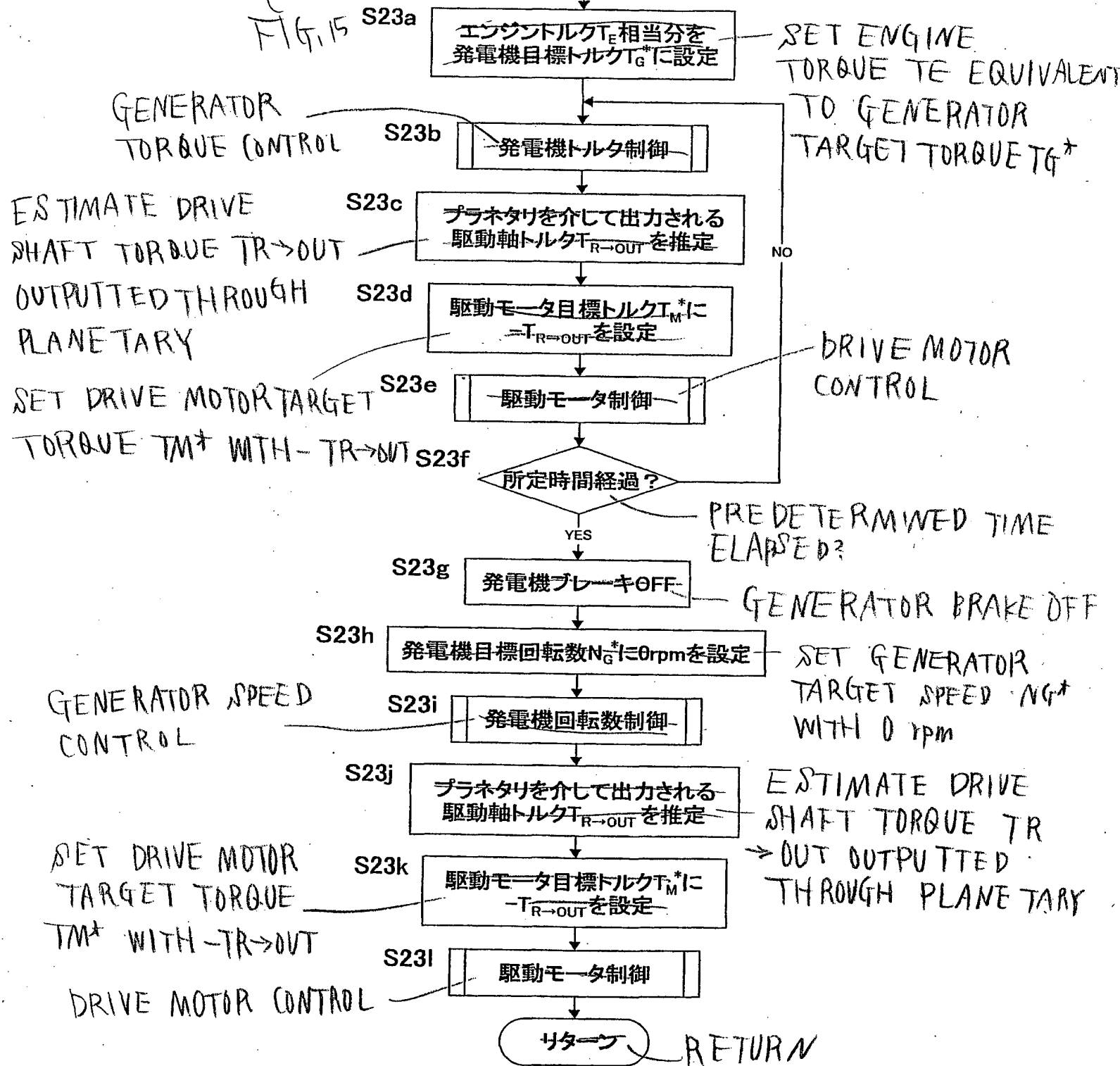
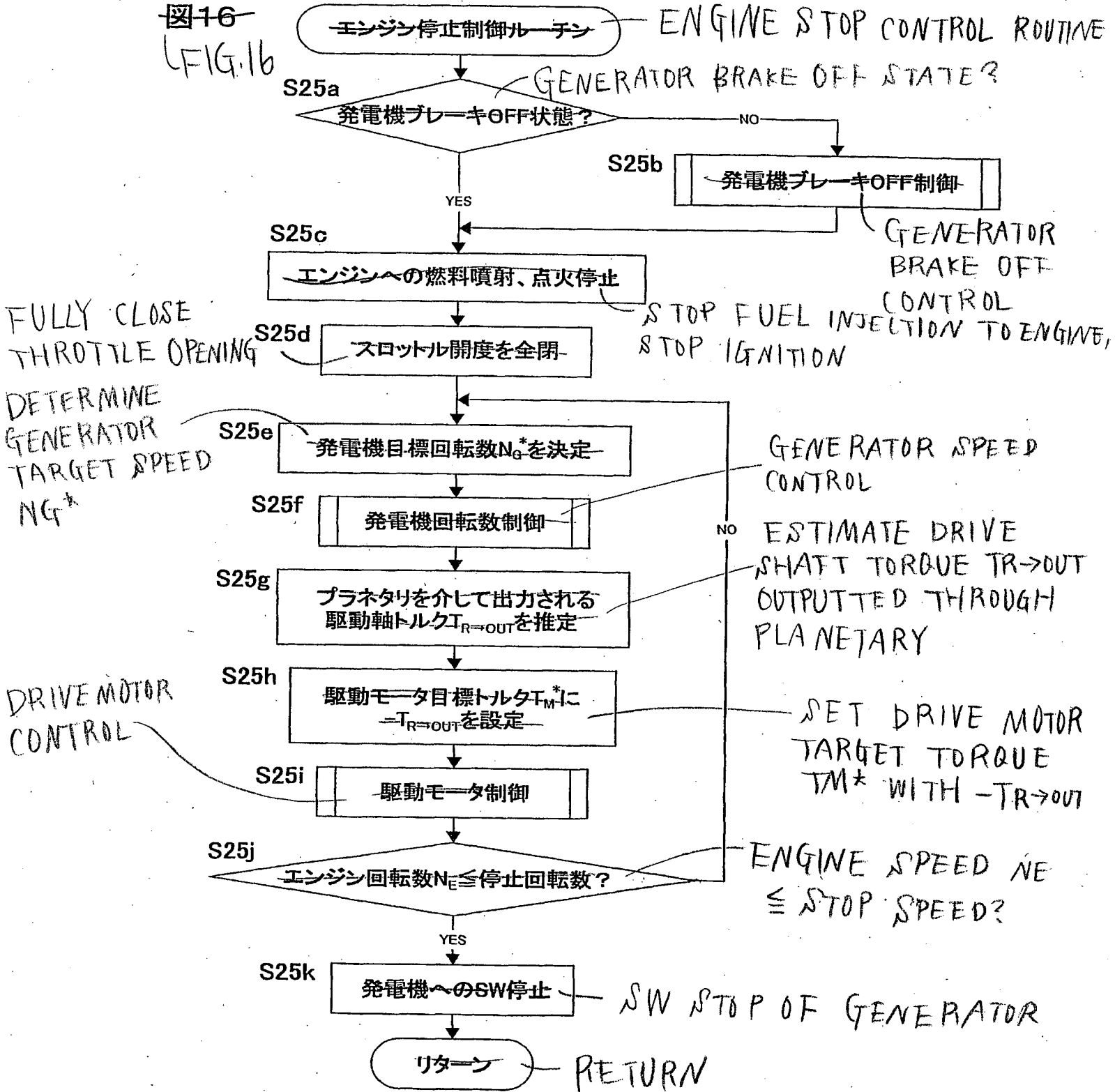


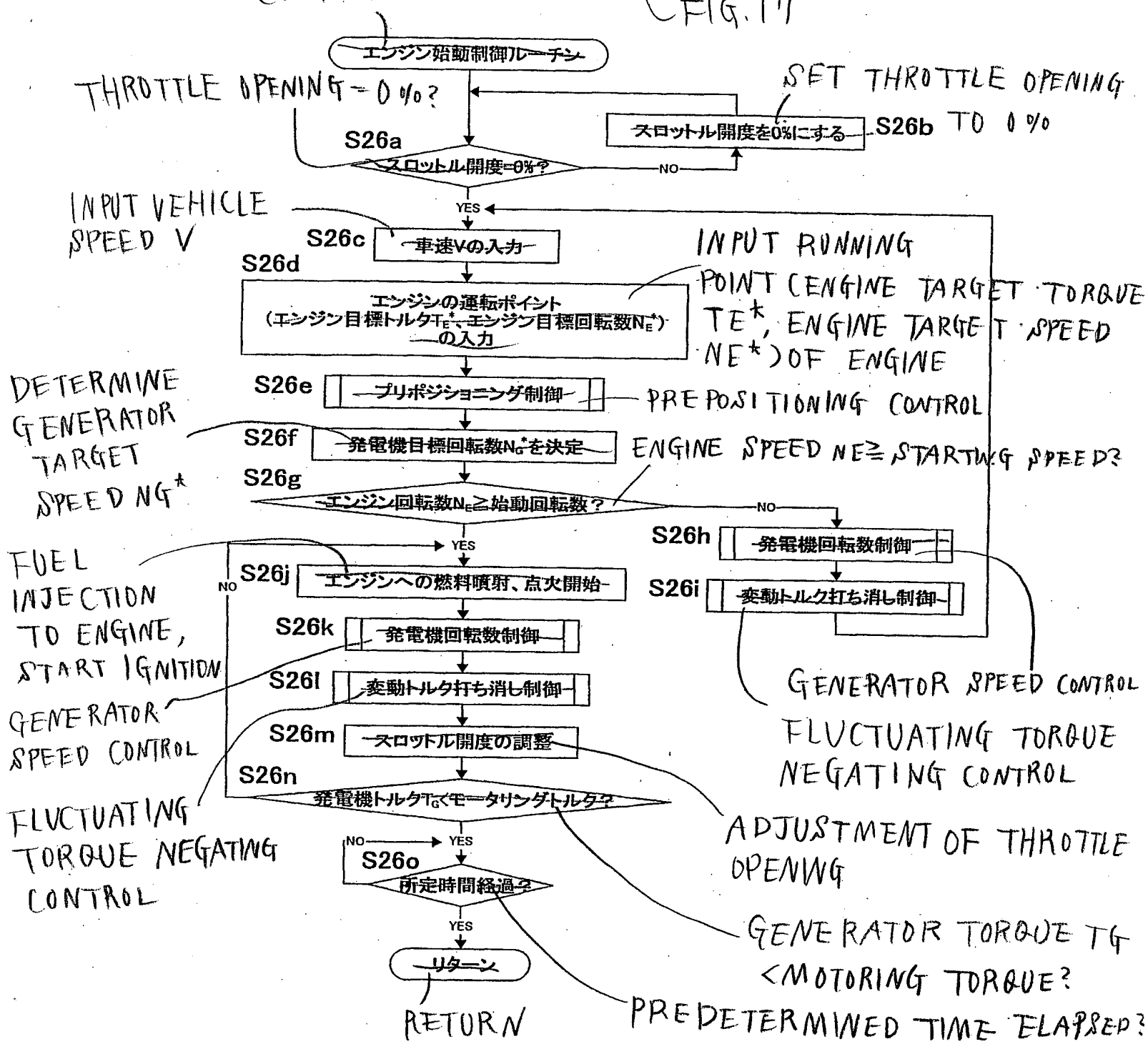
図16
FIG. 16

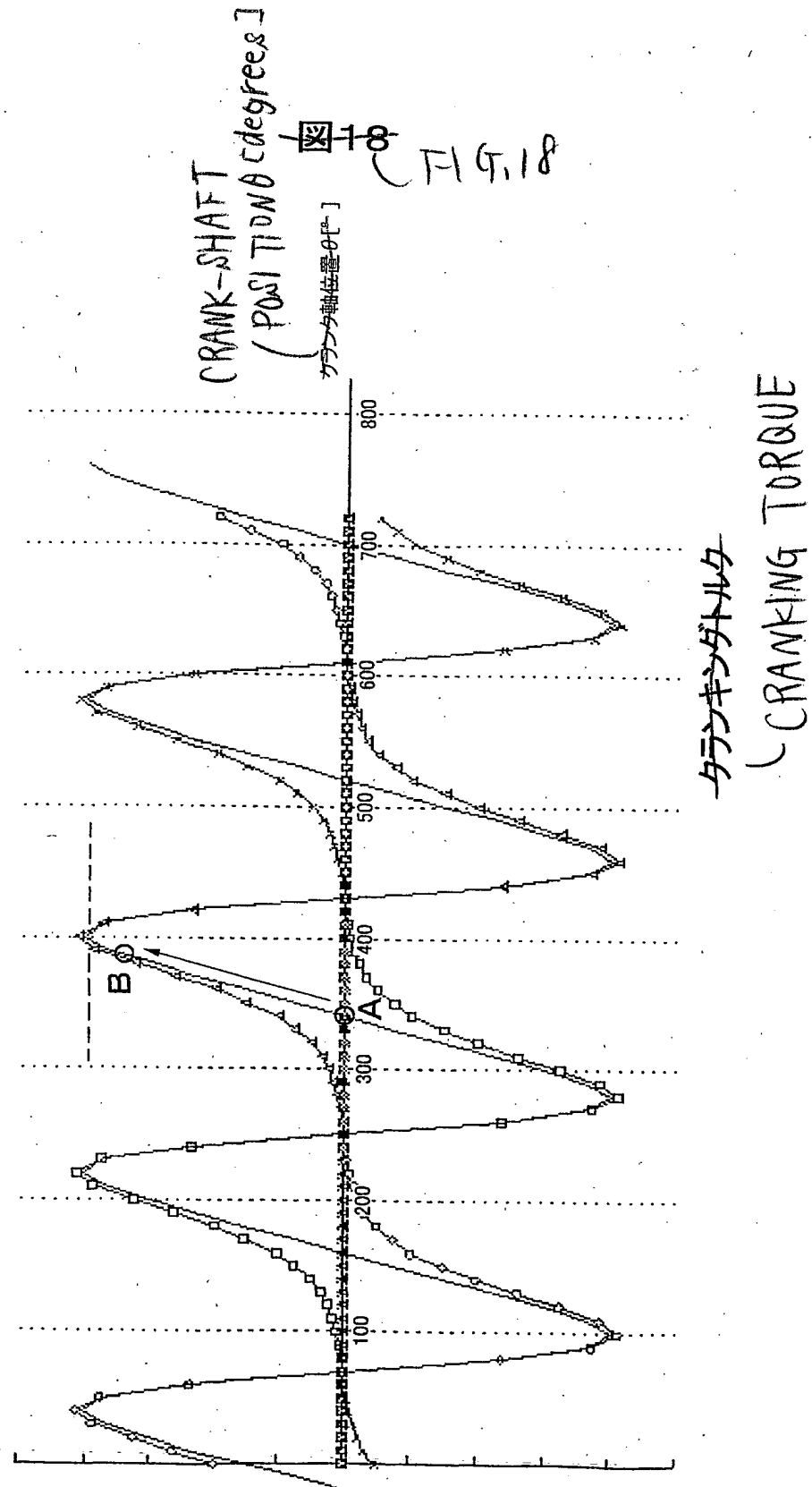


ENGINE START
CONTROL ROUTINE

図17

FIG. 17





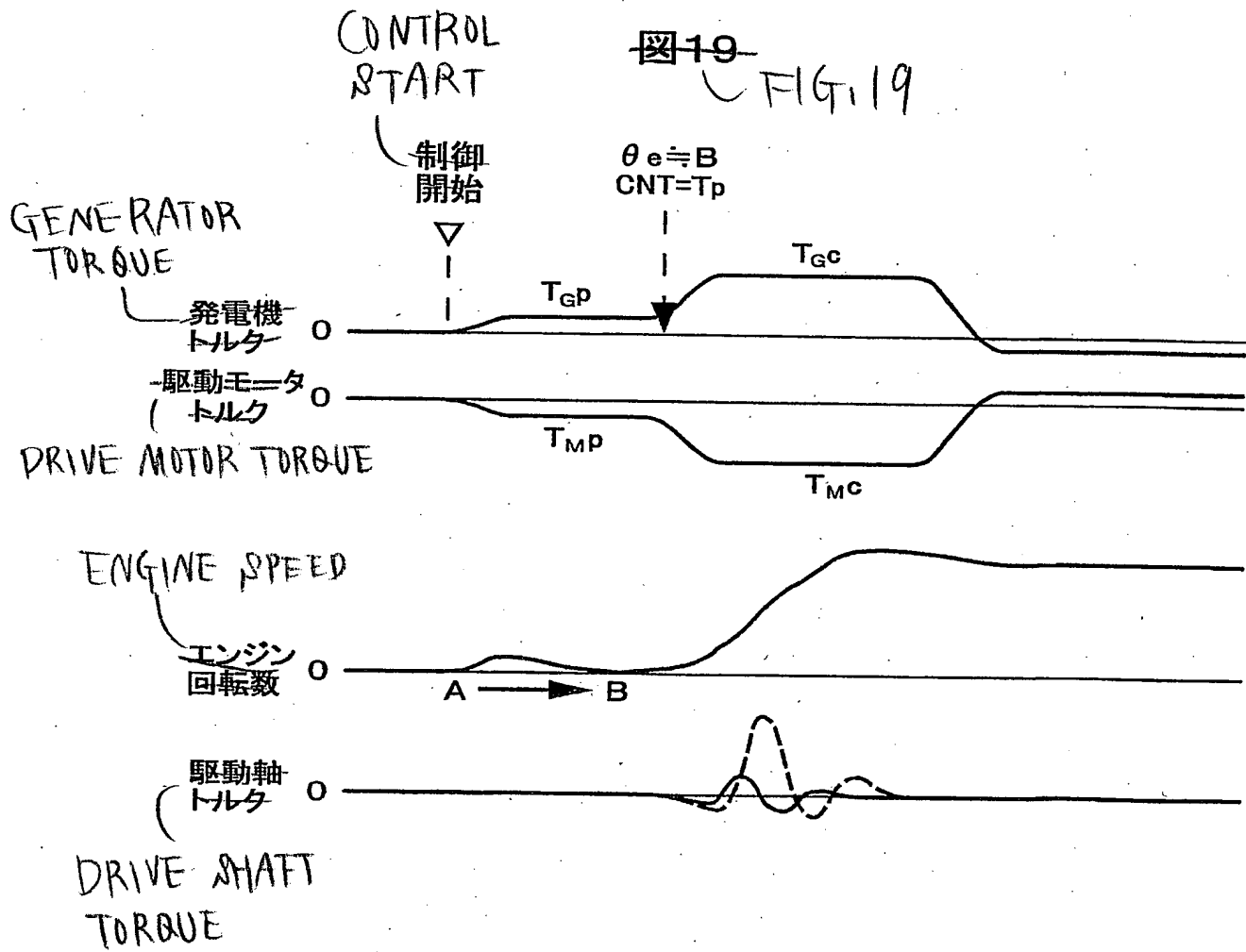


図20

FIG. 20

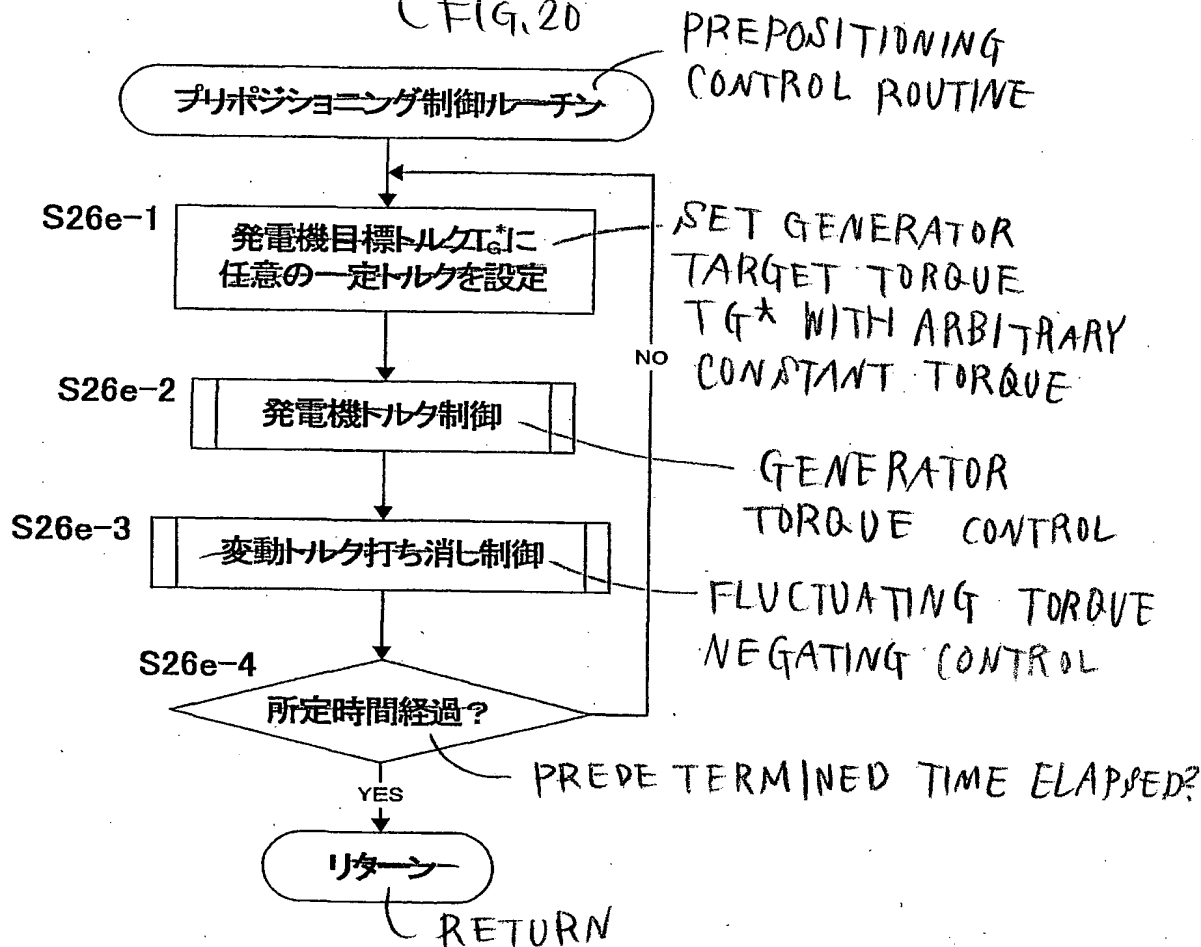


図21 FIG. 21

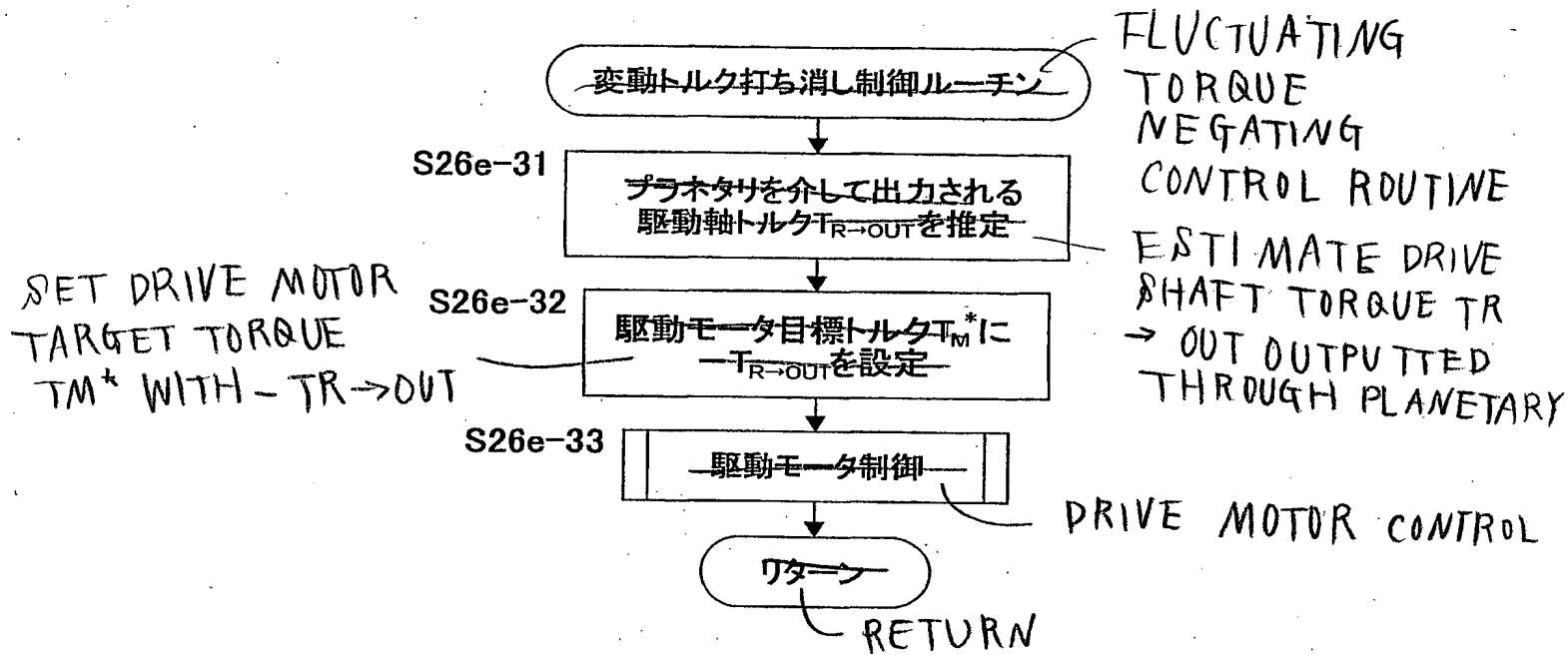


図22 FIG. 22

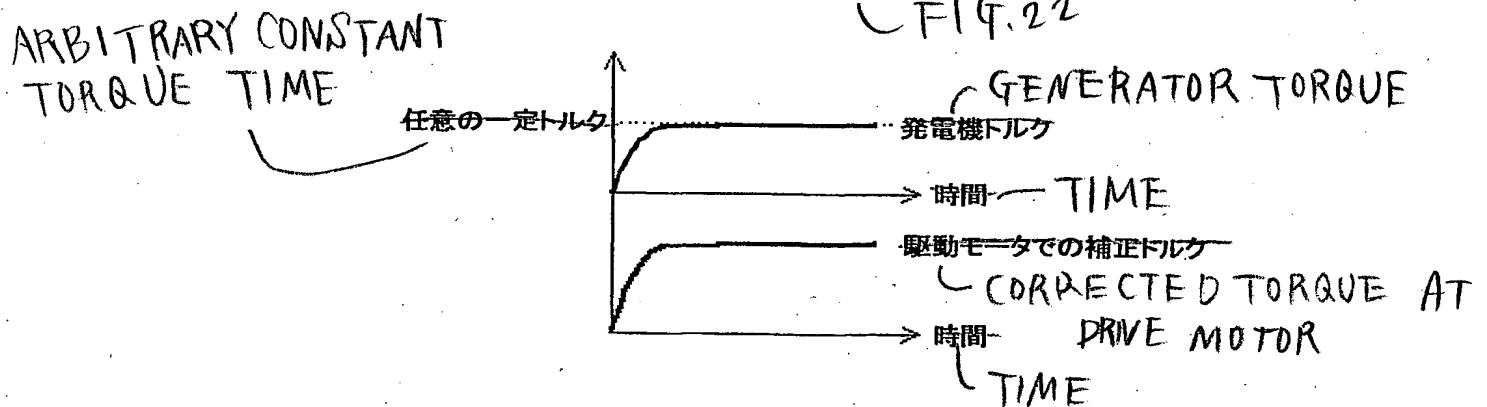


図23 FIG. 23

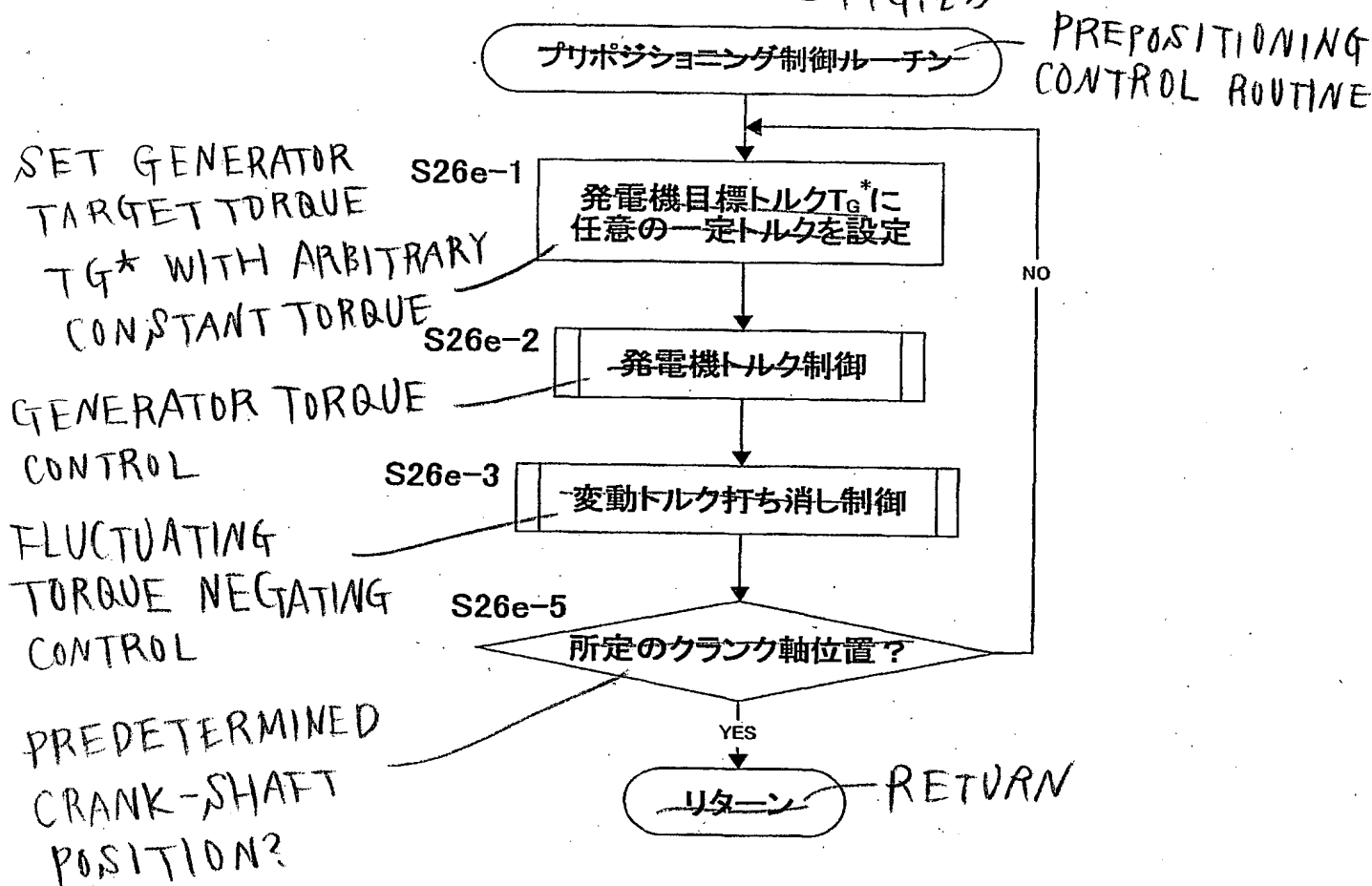
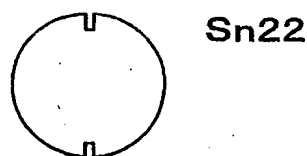
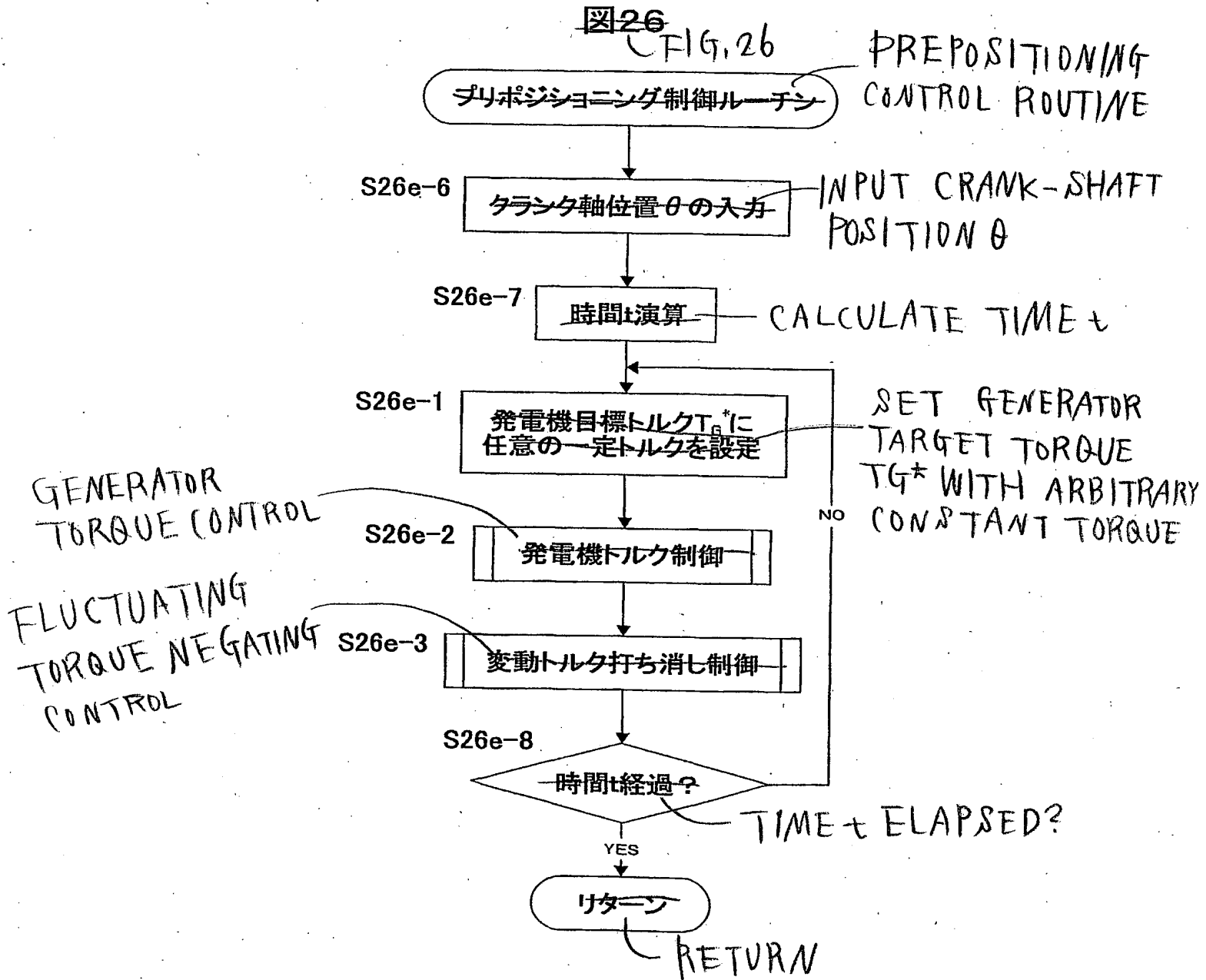


図24 FIG. 24



図25 FIG. 25





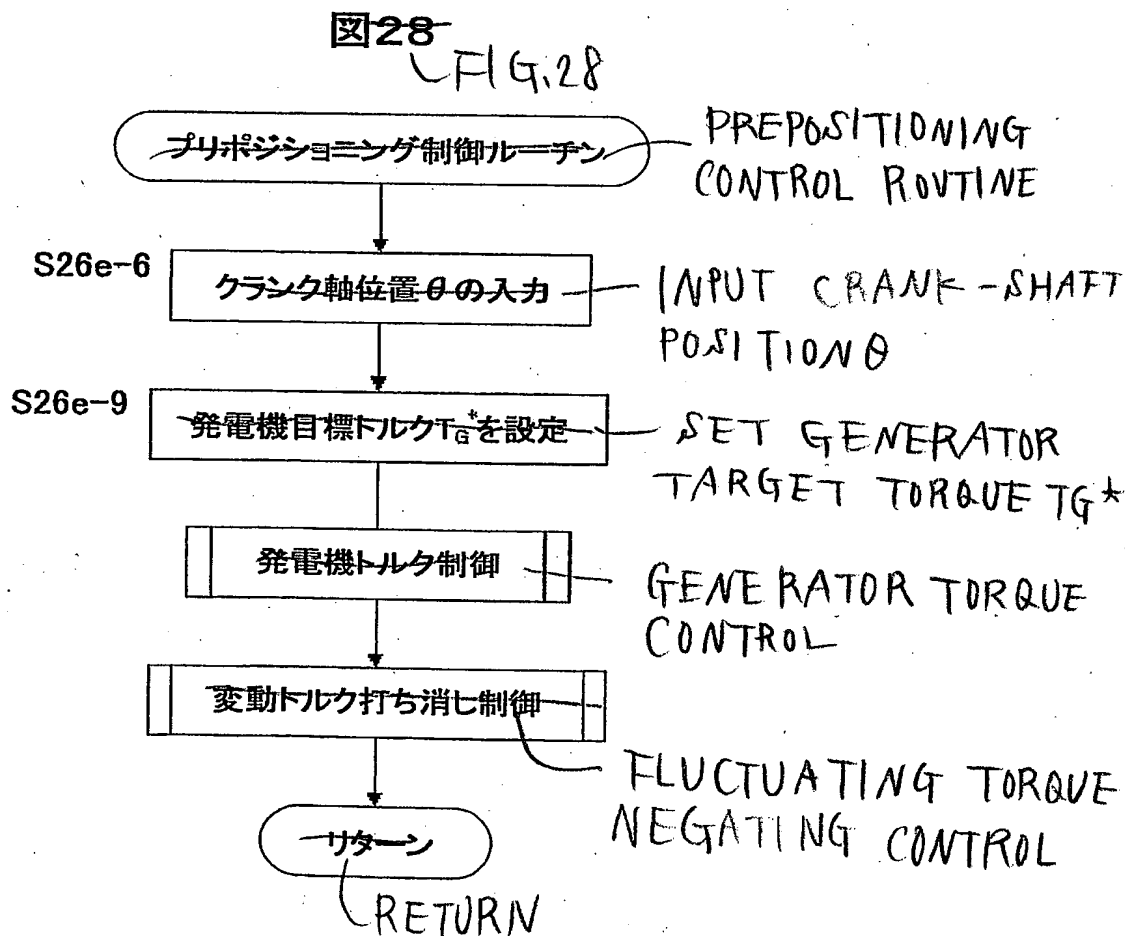
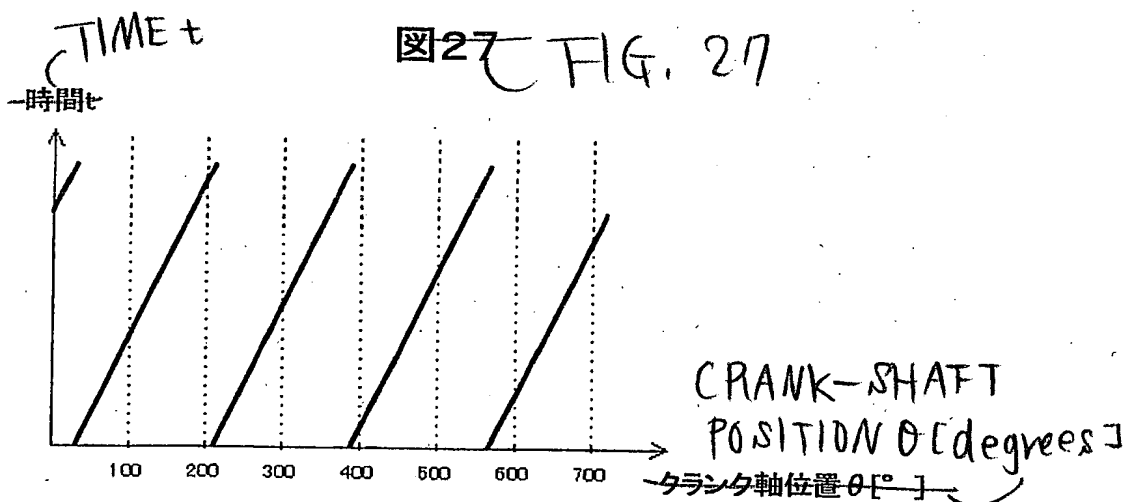
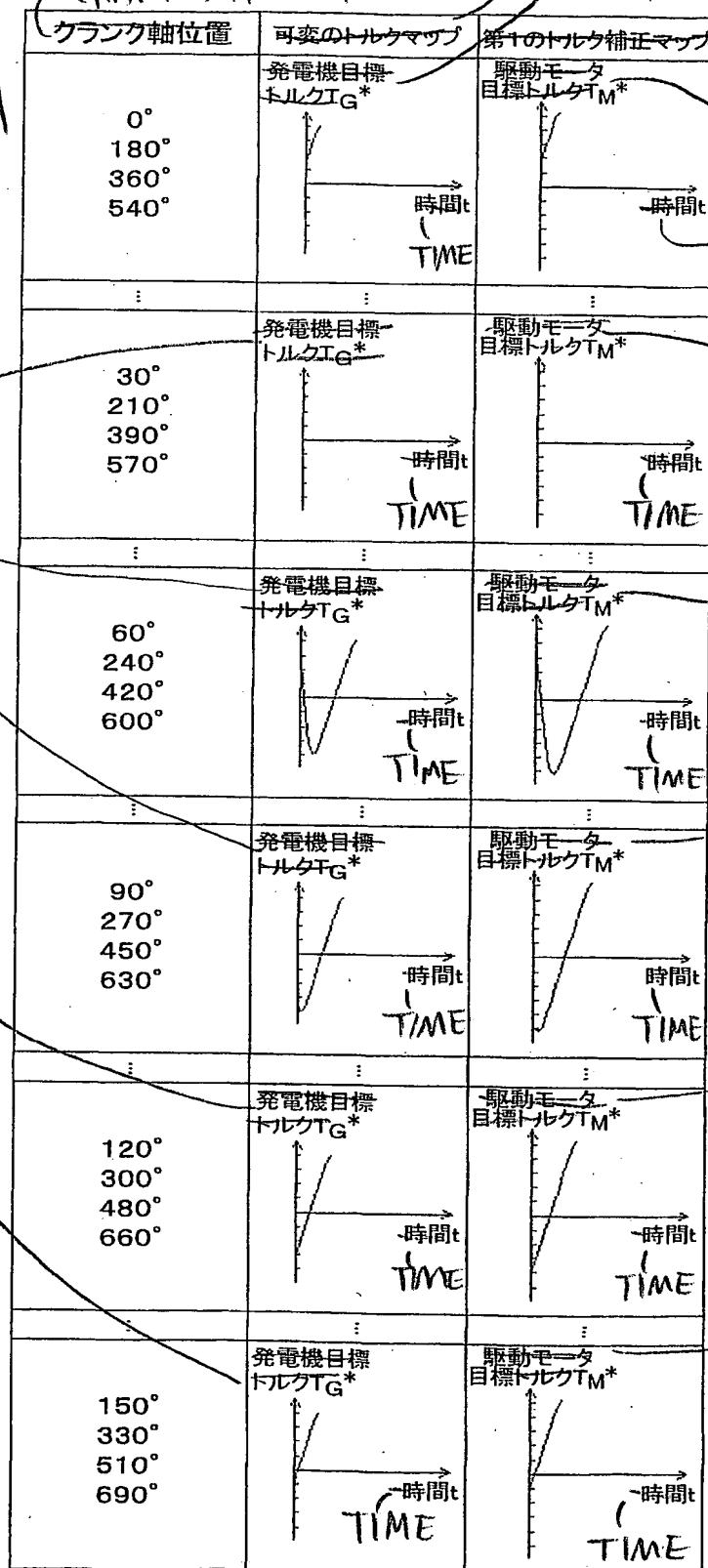


図29

(FIG. 29)



FIRST TORQUE CORRECTION MAP
DRIVE MOTOR TARGET TORQUE

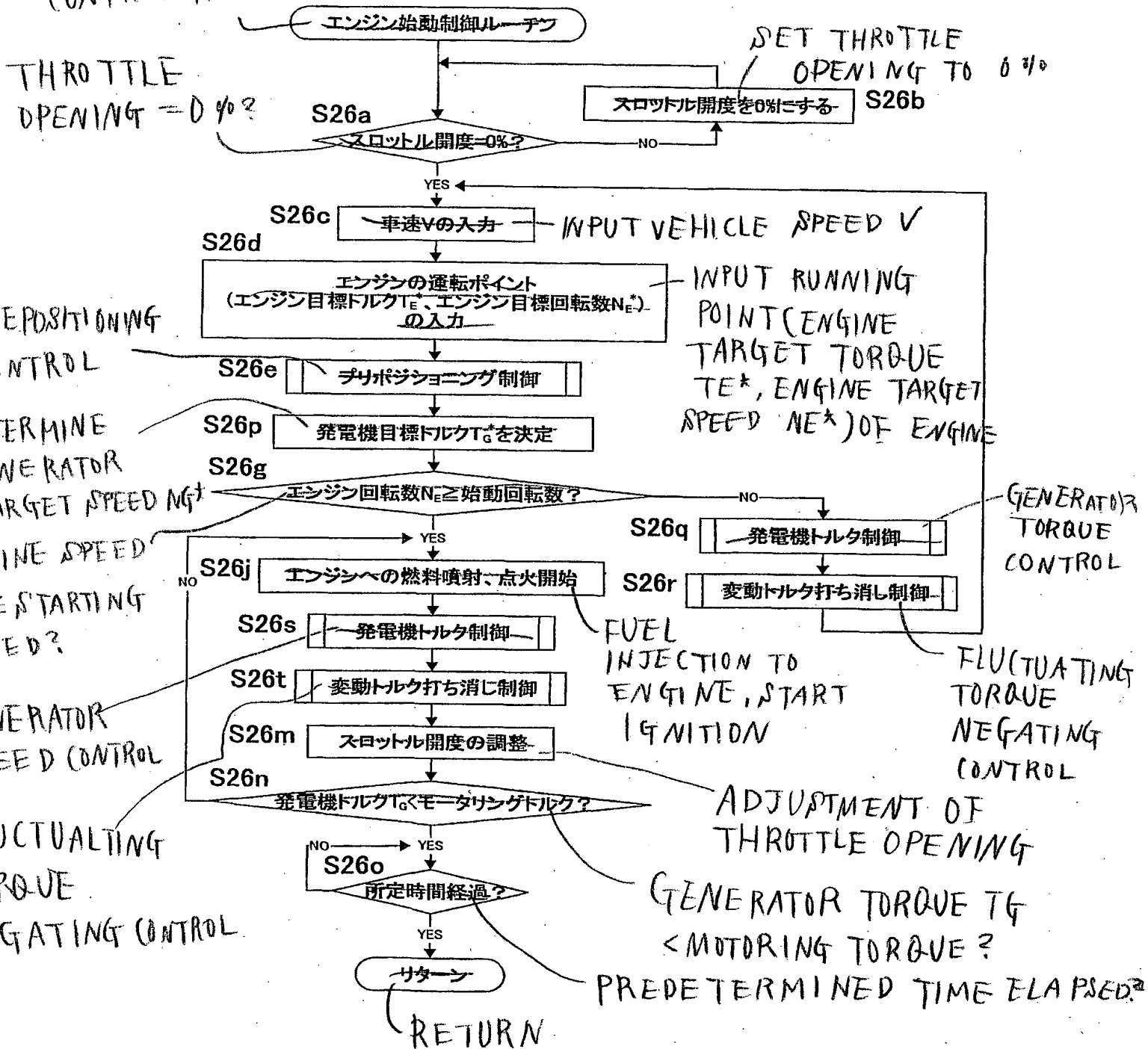
TIME

DRIVE MOTOR TARGET TORQUE

VARIABLE TORQUE MAP

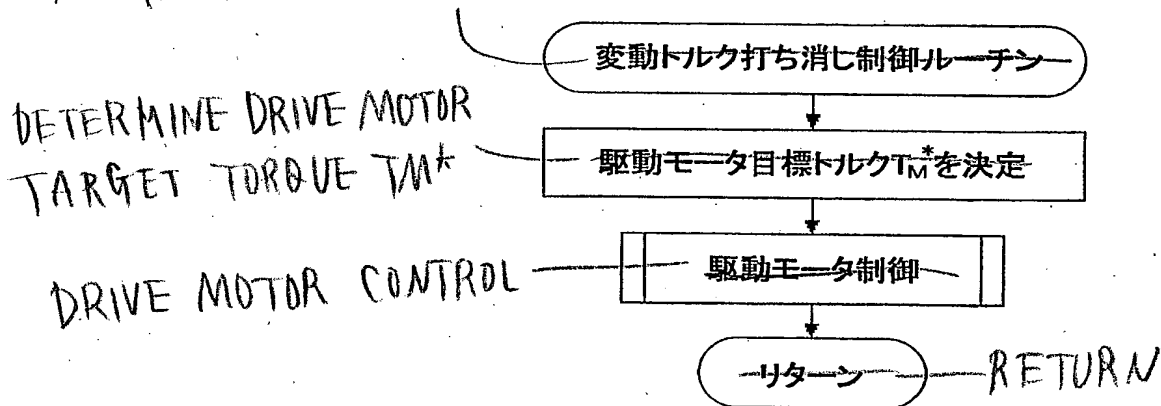
ENGINE START CONTROL ROUTINE

図30 - FIG. 30



FLUCTUATING TORQUE NEGATING CONTROL ROUTINE

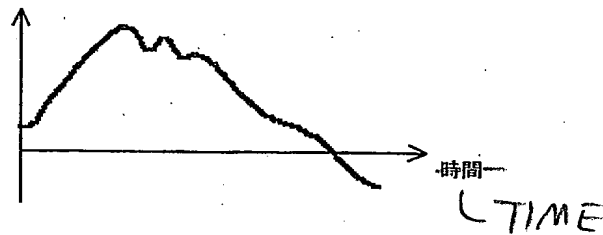
FIG. 31
図31



DRIVE MOTOR
TARGET TORQUE T_M^*

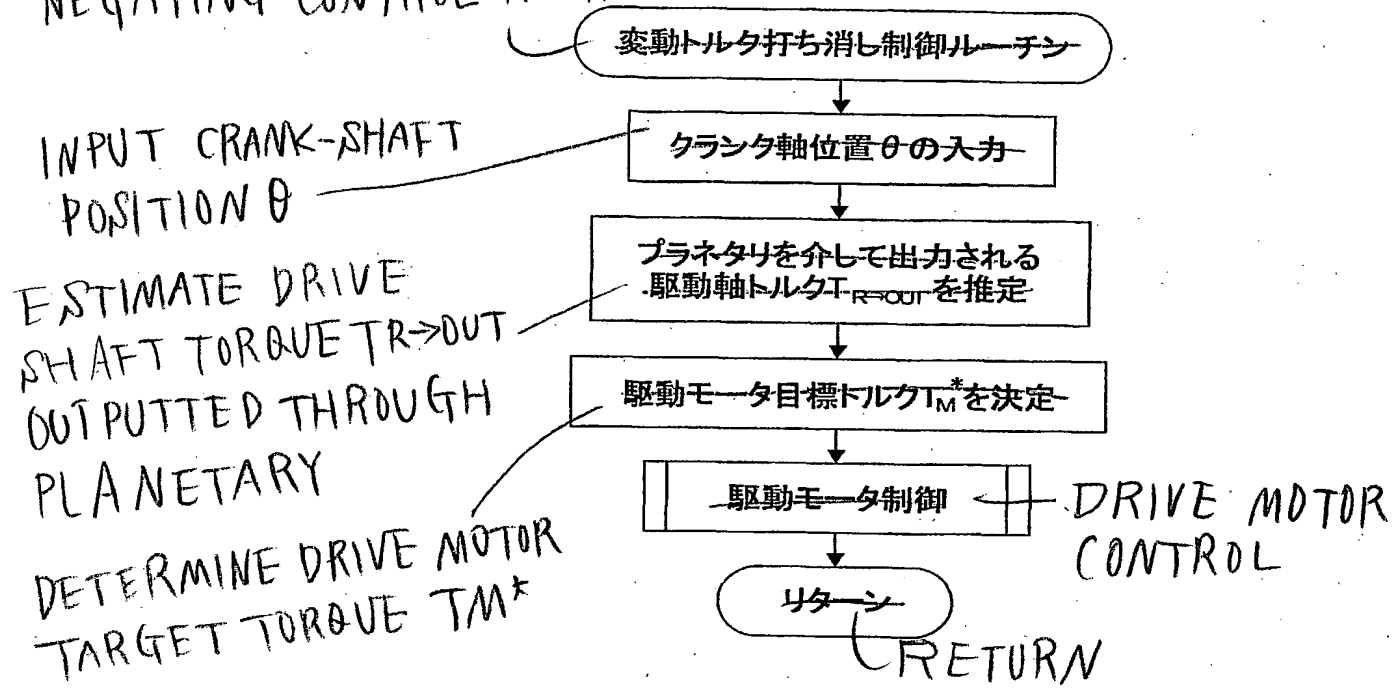
図32 FIG. 32

駆動モータ
目標トルク T_M^*



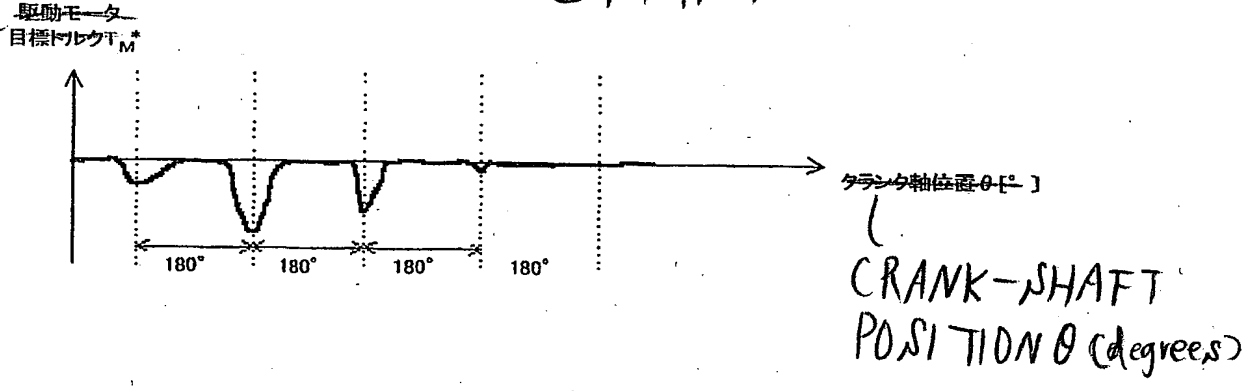
FLUCTUATING TORQUE NEGATING CONTROL ROUTINE

図33 FIG. 33



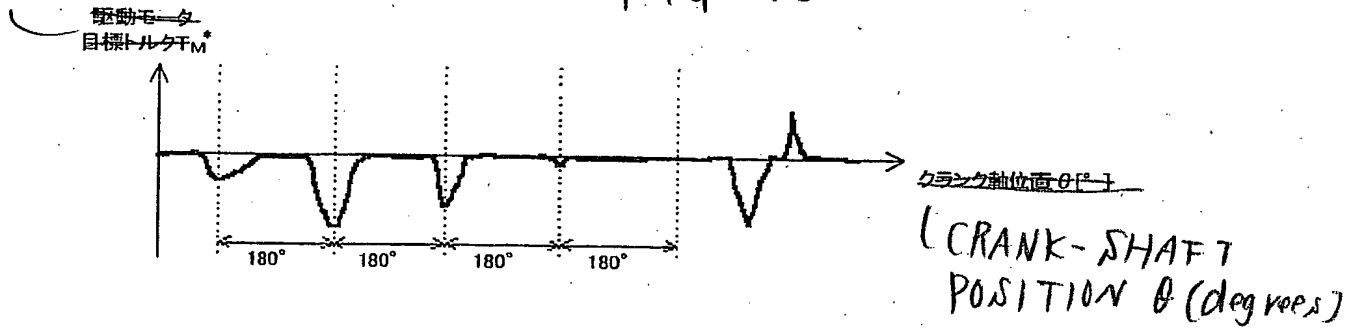
DRIVE MOTOR TARGET TORQUE T_M^*

図34 FIG. 34



DRIVE MOTOR
TARGET TORQUE T_M^*

図35
FIG. 35

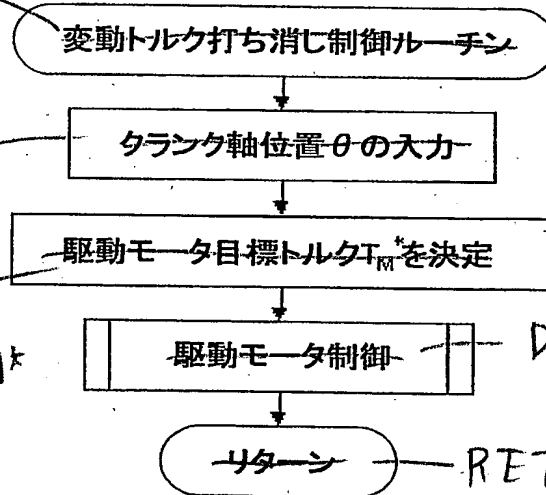


FLUCTUATING
TORQUE NEGATING
CONTROL ROUTINE

図36
FIG. 36

INPUT CRANK-SHAFT
POSITION θ

DETERMINE DRIVE
MOTOR TARGET TORQUE T_M^*

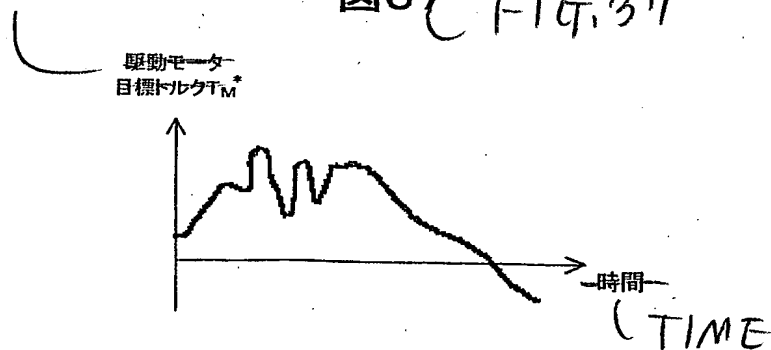


DRIVE MOTOR CONTROL

RETURN

DRIVE MOTOR TARGET TORQUE T_M^*

図37
FIG. 37



LF 15.38

SET THROTTLE OPENING

スロットル開度を0%にする S26b

YES

INPUT VEHICLE
DEMAND TORQUE
TOUT*

S26u 車両要求トルク T_{OUT}^* の出力

S26d

エンジンの運転ポイント
(エンジン目標トルク T_E^* 、エンジン目標回転数 N_E^*)
の入力

INPUT RUNNING POINT ENGINE TARGET TORQUE T_E^* , ENGINE TARGET SPEED N_E^*	DOF ENGINE
---	------------

S26v $\text{車両要求トルク } T_{OUT}^* \leq \text{所定トルク?}$

S26e プリポジショニング制御

-PRE POSITIONING CONTROL

S26f 発電機目標トルク T_G^* を決定

S26g エンジン回転数 $N_E \geq$ 始動回転数?

GENERATOR SPEED CONTROL

S26j エンジンへの燃料噴射、点火開始

S26h 発電機回転数制御

S26k	発電機回転数制御
------	----------

- GENERATOR SPEED CONTROL
- FLUCTUATING TORQUE NEGATING CONTROL
- FLUCTUATING TORQUE NEGATING CONTROL
- ADJUSTMENT OF THROTTLE OPENING

S201 変動トルク打ち消し制御

- FLUCTUATING TORQUE NEGATING CONTROL
- ADJUSTMENT OF THROTTLE OPENING

S26m スロットル開度の調整

ADJUSTMENT OF THROTTLE OPENING

S26n

発電機トルク T_g とモータリングトルク T_m

GENERATOR TORQUE $T_G < \text{MOTORING TORQUE}$

```

graph TD
    S260[S260] -- NO --> S260
    S260 -- YES --> S270[S270]
    S270 --> S280{所定時間經過?}
    S280 -- NO --> S260
    S280 -- YES --> S290[S290]
    S290 --> S300{時間經過?}
    S300 -- NO --> S280
    S300 -- YES --> S310[S310]
    S310 --> S320{時間經過?}
    S320 -- NO --> S300
    S320 -- YES --> S330[S330]
    S330 --> S340{時間經過?}
    S340 -- NO --> S320
    S340 -- YES --> S350[S350]
    S350 --> S360{時間經過?}
    S360 -- NO --> S340
    S360 -- YES --> S370[S370]
    S370 --> S380{時間經過?}
    S380 -- NO --> S360
    S380 -- YES --> S390[S390]
    S390 --> S400{時間經過?}
    S400 -- NO --> S380
    S400 -- YES --> S410[S410]
    S410 --> S420{時間經過?}
    S420 -- NO --> S400
    S420 -- YES --> S430[S430]
    S430 --> S440{時間經過?}
    S440 -- NO --> S420
    S440 -- YES --> S450[S450]
    S450 --> S460{時間經過?}
    S460 -- NO --> S440
    S460 -- YES --> S470[S470]
    S470 --> S480{時間經過?}
    S480 -- NO --> S460
    S480 -- YES --> S490[S490]
    S490 --> S500{時間經過?}
    S500 -- NO --> S480
    S500 -- YES --> S510[S510]
    S510 --> S520{時間經過?}
    S520 -- NO --> S500
    S520 -- YES --> S530[S530]
    S530 --> S540{時間經過?}
    S540 -- NO --> S520
    S540 -- YES --> S550[S550]
    S550 --> S560{時間經過?}
    S560 -- NO --> S540
    S560 -- YES --> S570[S570]
    S570 --> S580{時間經過?}
    S580 -- NO --> S560
    S580 -- YES --> S590[S590]
    S590 --> S600{時間經過?}
    S600 -- NO --> S580
    S600 -- YES --> S610[S610]
    S610 --> S620{時間經過?}
    S620 -- NO --> S600
    S620 -- YES --> S630[S630]
    S630 --> S640{時間經過?}
    S640 -- NO --> S620
    S640 -- YES --> S650[S650]
    S650 --> S660{時間經過?}
    S660 -- NO --> S640
    S660 -- YES --> S670[S670]
    S670 --> S680{時間經過?}
    S680 -- NO --> S660
    S680 -- YES --> S690[S690]
    S690 --> S700{時間經過?}
    S700 -- NO --> S680
    S700 -- YES --> S710[S710]
    S710 --> S720{時間經過?}
    S720 -- NO --> S700
    S720 -- YES --> S730[S730]
    S730 --> S740{時間經過?}
    S740 -- NO --> S720
    S740 -- YES --> S750[S750]
    S750 --> S760{時間經過?}
    S760 -- NO --> S740
    S760 -- YES --> S770[S770]
    S770 --> S780{時間經過?}
    S780 -- NO --> S760
    S780 -- YES --> S790[S790]
    S790 --> S800{時間經過?}
    S800 -- NO --> S780
    S800 -- YES --> S810[S810]
    S810 --> S820{時間經過?}
    S820 -- NO --> S800
    S820 -- YES --> S830[S830]
    S830 --> S840{時間經過?}
    S840 -- NO --> S820
    S840 -- YES --> S850[S850]
    S850 --> S860{時間經過?}
    S860 -- NO --> S840
    S860 -- YES --> S870[S870]
    S870 --> S880{時間經過?}
    S880 -- NO --> S860
    S880 -- YES --> S890[S890]
    S890 --> S900{時間經過?}
    S900 -- NO --> S880
    S900 -- YES --> S910[S910]
    S910 --> S920{時間經過?}
    S920 -- NO --> S900
    S920 -- YES --> S930[S930]
    S930 --> S940{時間經過?}
    S940 -- NO --> S920
    S940 -- YES --> S950[S950]
    S950 --> S960{時間經過?}
    S960 -- NO --> S940
    S960 -- YES --> S970[S970]
    S970 --> S980{時間經過?}
    S980 -- NO --> S960
    S980 -- YES --> S990[S990]
    S990 --> S1000{時間經過?}
    S1000 -- NO --> S980
    S1000 -- YES --> S1010[S1010]
    S1010 --> S1020{時間經過?}
    S1020 -- NO --> S1000
    S1020 -- YES --> S1030[S1030]
    S1030 --> S1040{時間經過?}
    S1040 -- NO --> S1020
    S1040 -- YES --> S1050[S1050]
    S1050 --> S1060{時間經過?}
    S1060 -- NO --> S1040
    S1060 -- YES --> S1070[S1070]
    S1070 --> S1080{時間經過?}
    S1080 -- NO --> S1060
    S1080 -- YES --> S1090[S1090]
    S1090 --> S1100{時間經過?}
    S1100 -- NO --> S1080
    S1100 -- YES --> S1110[S1110]
    S1110 --> S1120{時間經過?}
    S1120 -- NO --> S1100
    S1120 -- YES --> S1130[S1130]
    S1130 --> S1140{時間經過?}
    S1140 -- NO --> S1120
    S1140 -- YES --> S1150[S1150]
    S1150 --> S1160{時間經過?}
    S1160 -- NO --> S1140
    S1160 -- YES --> S1170[S1170]
    S1170 --> S1180{時間經過?}
    S1180 -- NO --> S1160
    S1180 -- YES --> S1190[S1190]
    S1190 --> S1200{時間經過?}
    S1200 -- NO --> S1180
    S1200 -- YES --> S1210[S1210]
    S1210 --> S1220{時間經過?}
    S1220 -- NO --> S1200
    S1220 -- YES --> S1230[S1230]
    S1230 --> S1240{時間經過?}
    S1240 -- NO --> S1220
    S1240 -- YES --> S1250[S1250]
    S1250 --> S1260{時間經過?}
    S1260 -- NO --> S1240
    S1260 -- YES --> S1270[S1270]
    S1270 --> S1280{時間經過?}
    S1280 -- NO --> S1260
    S1280 -- YES --> S1290[S1290]
    S1290 --> S1300{時間經過?}
    S1300 -- NO --> S1280
    S1300 -- YES --> S1310[S1310]
    S1310 --> S1320{時間經過?}
    S1320 -- NO --> S1300
    S1320 -- YES --> S1330[S1330]
    S1330 --> S1340{時間經過?}
    S1340 -- NO --> S1320
    S1340 -- YES --> S1350[S1350]
    S1350 --> S1360{時間經過?}
    S1360 -- NO --> S1340
    S1360 -- YES --> S1370[S1370]
    S1370 --> S1380{時間經過?}
    S1380 -- NO --> S1360
    S1380 -- YES --> S1390[S1390]
    S1390 --> S1400{時間經過?}
    S1400 -- NO --> S1380
    S1400 -- YES --> S1410[S1410]
    S1410 --> S1420{時間經過?}
    S1420 -- NO --> S1400
    S1420 -- YES --> S1430[S1430]
    S1430 --> S1440{時間經過?}
    S1440 -- NO --> S1420
    S1440 -- YES --> S1450[S1450]
    S1450 --> S1460{時間經過?}
    S1460 -- NO --> S1440
    S1460 -- YES --> S1470[S1470]
    S1470 --> S1480{時間經過?}
    S1480 -- NO --> S1460
    S1480 -- YES --> S1490[S1490]
    S1490 --> S1500{時間經過?}
    S1500 -- NO --> S1480
    S1500 -- YES --> S1510[S1510]
    S1510 --> S1520{時間經過?}
    S1520 -- NO --> S1500
    S1520 -- YES --> S1530[S1530]
    S1530 --> S1540{時間經過?}
    S1540 -- NO --> S1520
    S1540 -- YES --> S1550[S1550]
    S1550 --> S1560{時間經過?}
    S1560 -- NO --> S1540
    S1560 -- YES --> S1570[S1570]
    S1570 --> S1580{時間經過?}
    S1580 -- NO --> S1560
    S1580 -- YES --> S1590[S1590]
    S1590 --> S1600{時間經過?}
    S1600 -- NO --> S1580
    S1600 -- YES --> S1610[S1610]
    S1610 --> S1620{時間經過?}
    S1620 -- NO --> S1600
    S1620 -- YES --> S1630[S1630]
    S1630 --> S1640{
```

PREDETERMINED TIME ELAPSED?

リターン

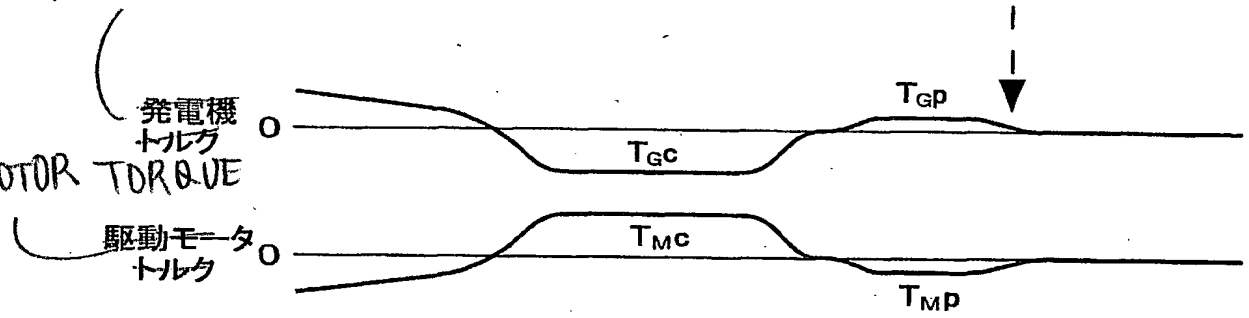
RETURN

図39

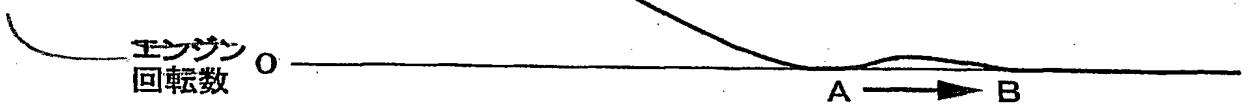
FIG. 39

GENERATOR TORQUE

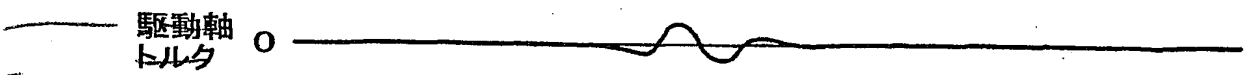
DRIVE MOTOR TORQUE



ENGINE SPEED



DRIVE SHAFT TORQUE

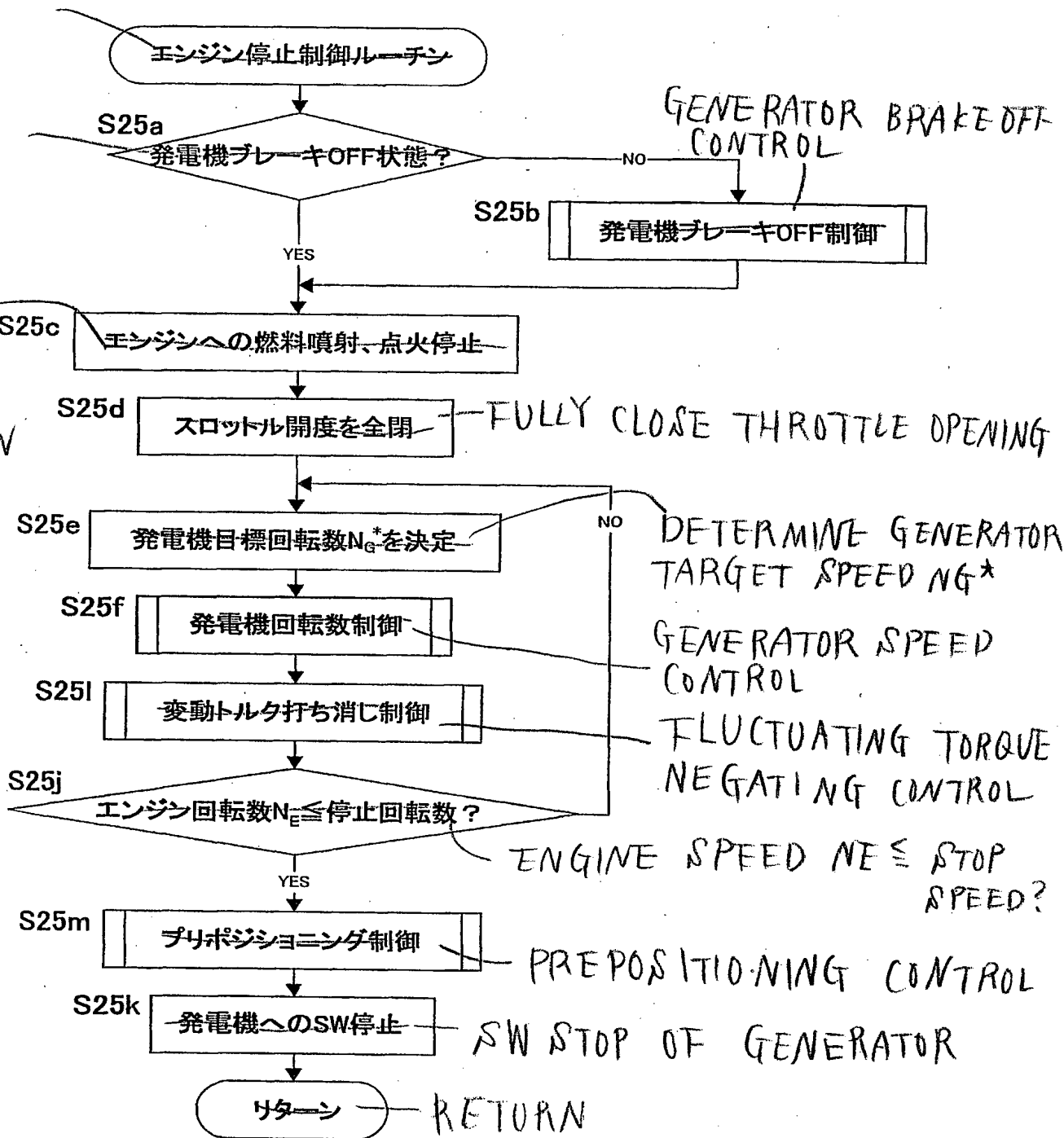


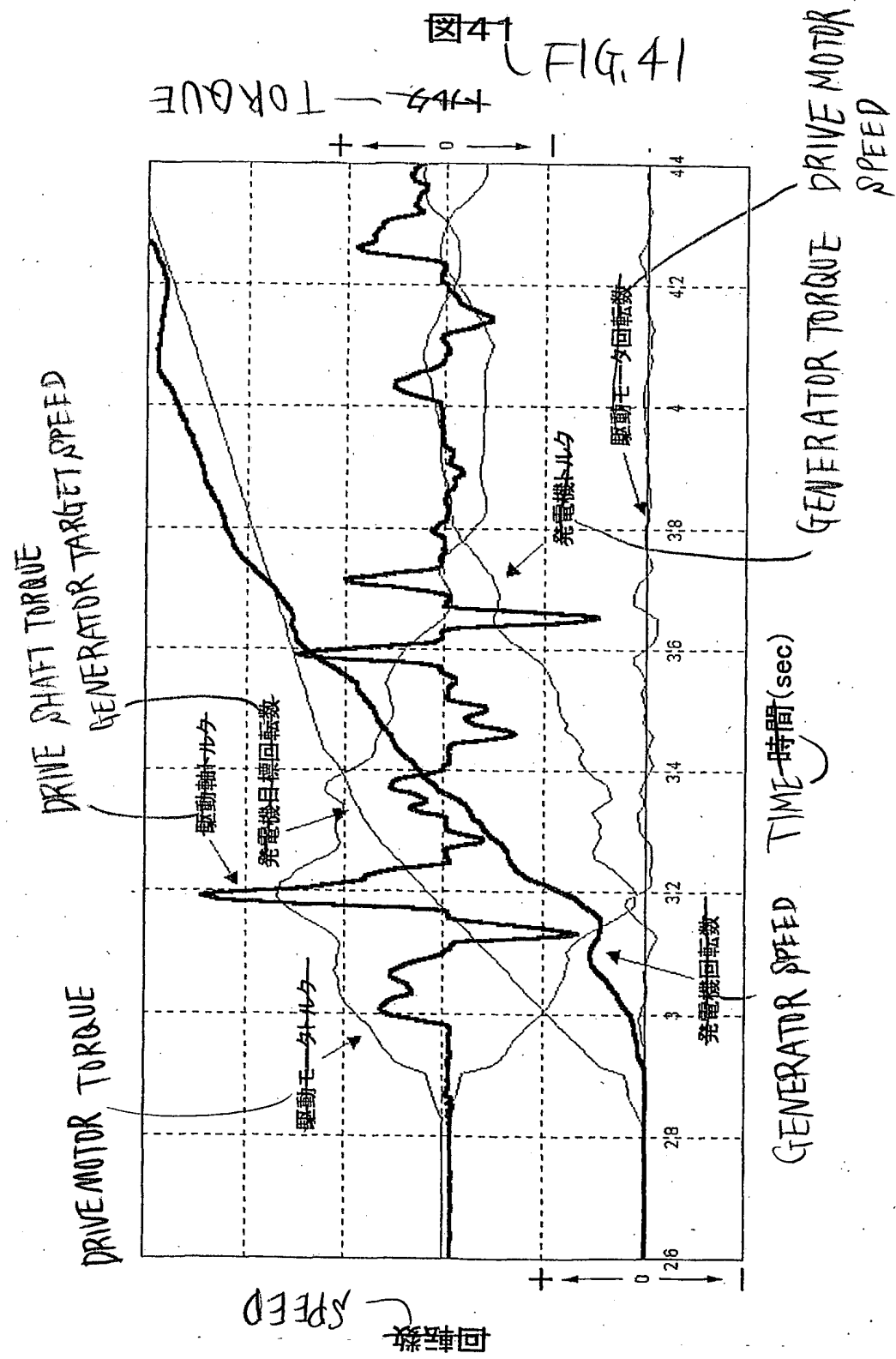
ENGINE STOP CONTROL ROUTINE

図40 FIG. 40

GENERATOR BRAKE OFF STATE?

STOP FUEL INJECTION TO ENGINE, STOP IGNITION





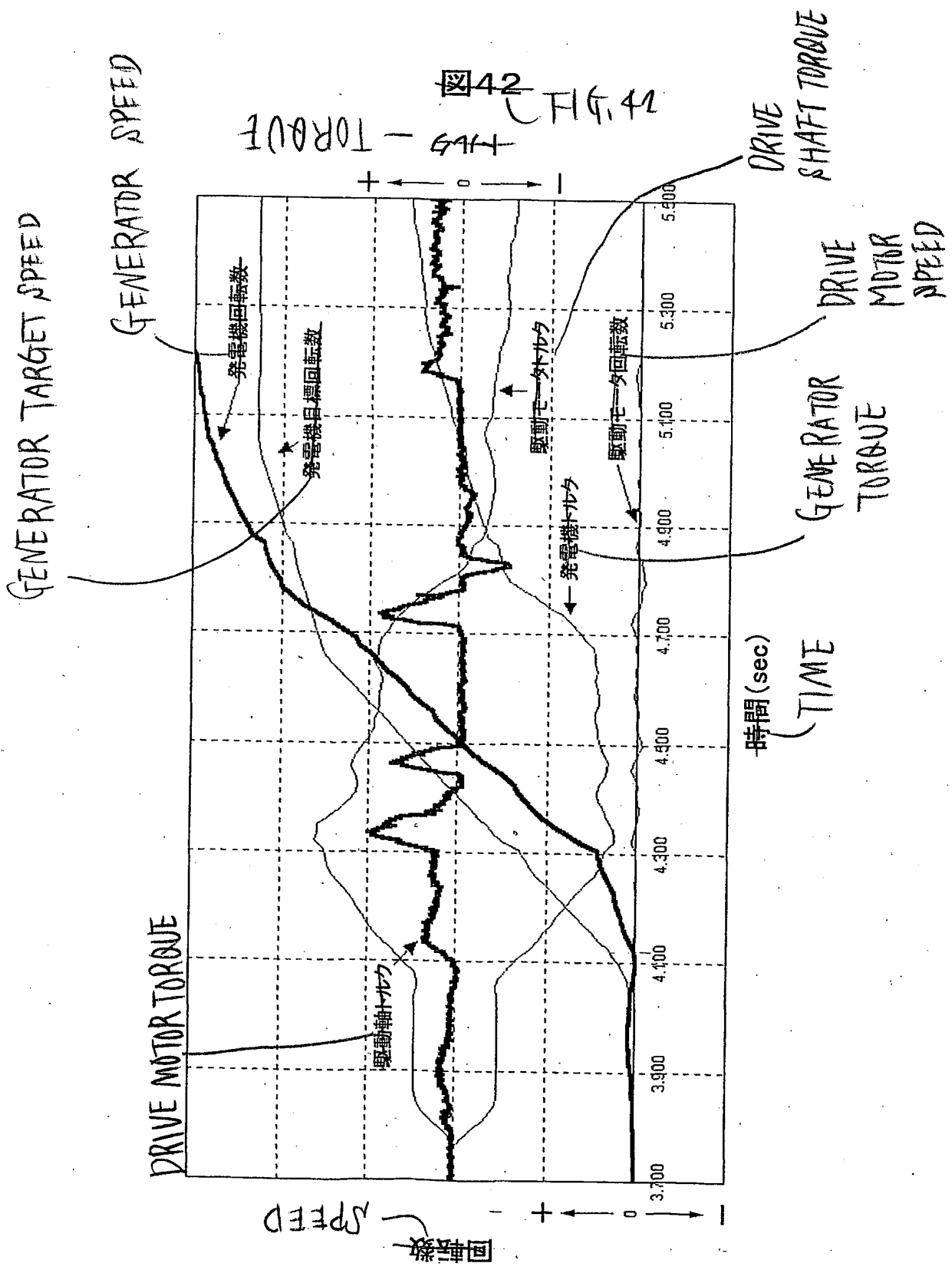


図43

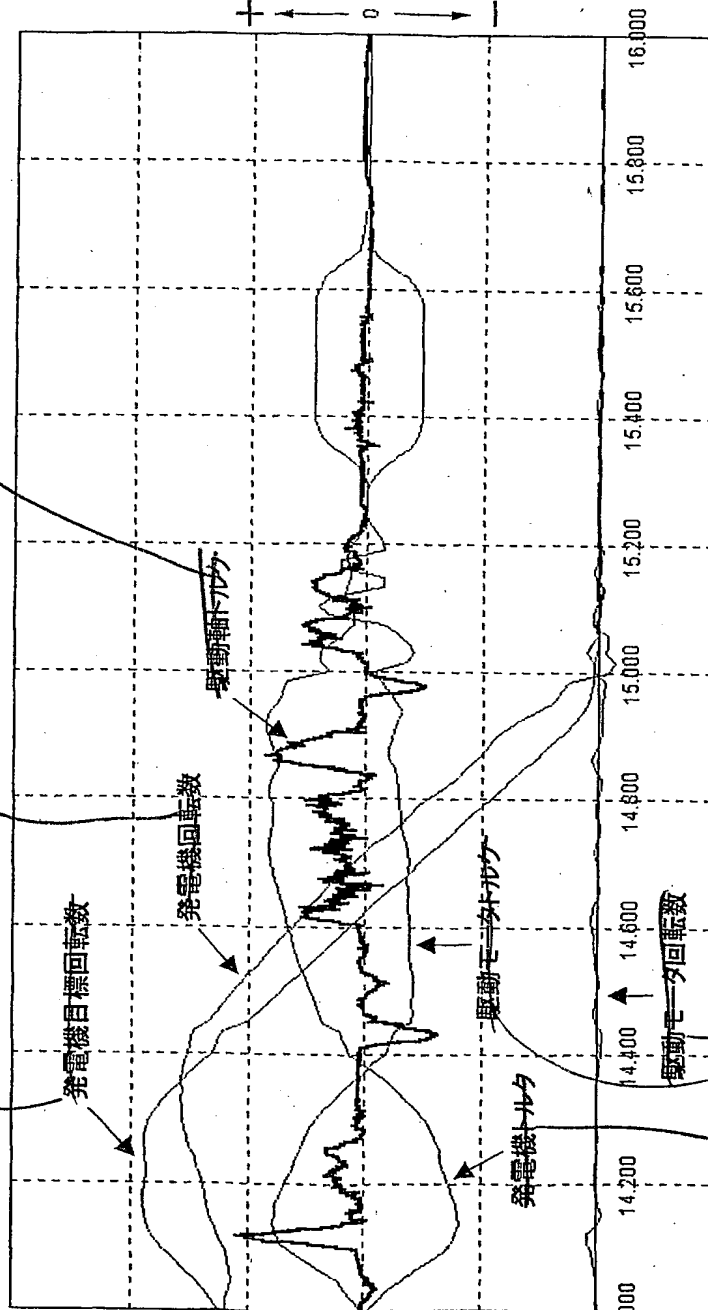
FIG. 43

トルク

DRIVE SHAFT TORQUE

GENERATOR TARGET SPEED

GENERATOR SPEED



時間(sec)

TIME

DRIVE MOTOR SPEED

DRIVE MOTOR TORQUE

GENERATOR TORQUE

SPEED

回転数